

# ZOOTAXA

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**A revision of the genus *Paratyndaris* Fisher, 1919  
(Coleoptera: Buprestidae: Polycestinae)**

G. H. NELSON & C. L. BELLAMY



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## A revision of the genus *Paratyndaris* Fisher, 1919 (Coleoptera: Buprestidae: Polycestinae)

G. H. NELSON<sup>1</sup> & C. L. BELLAMY<sup>2</sup>

<sup>1</sup> Professor Emeritus, Western University of Health Sciences, College Plaza, 309 E. Second Street, Pomona, CA 91766-1889, U.S.A.; Present address: 1308 NW Hawk Creek, Blue Springs, MO 64015-1787, U.S.A.; email: bups4me@aol.com

<sup>2</sup> Plant Pest Diagnostic Laboratory, California Department of Food and Agriculture, 3294 Meadowview Road, Sacramento, California, 95832, U.S.A.; email: cbellamy@cdfa.ca.gov; Corresponding author via email

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## Abstract

The genus *Paratyndaris* Fisher, 1919 is revised, and three subgenera are recognized: *P. (Knulliella)* Cobos, *P. (Paratyndaris)* Fisher, and *P. (Waltersia)*, subg. nov. [type species: *Tyndaris barberi* Skinner]. The subgenus *P. (Knulliella)* contains six species: *P. (K.) antillarum* Fisher, *P. (K.) chamaeleonis* (Skinner), *P. (K.) mojito* Bílý, *P. (K.) pulchra*, sp. nov., *P. (K.) similis*, sp. nov., and *P. (K.) suturalis* Fall. The subgenus *P. (Paratyndaris)* contains 26 species: *P. (P.) acaciae* Knull, *P. (P.) albofasciata* Knull, *P. (P.) anomalis* Knull, *P. (P.) cincta* (Horn), *P. (P.) costata*, sp. nov., *P. (P.) coursetiae* Fisher, *P. (P.) crandalli* Knull, *P. (P.) dozieri*, sp. nov., *P. (P.) grassmani* Parker, *P. (P.) lateralis* (Barr), *P. (P.) mexicana* Fisher, *P. (P.) mimica*, sp. nov., *P. (P.) nelsoni* (Barr), *P. (P.) olneyae* (Skinner), *P. (P.) paralateralis*, sp. nov., *P. (P.) peninsularis* Westcott, *P. (P.) prosopis* (Skinner), *P. (P.) quadrinotata* Knull, *P. (P.) robusta* (Dozier), *P. (P.) subcostata* (Barr), *P. (P.) tucsoni* Knull, *P. (P.) turbida*, sp. nov., *P. (P.) uniformis*, sp. nov., *P. (P.) variabilis* Westcott, *P. (P.) verityi*, sp. nov., and *P. (P.) westcotti*, sp. nov. The subgenus *P. (Waltersia)* contains four species: *P. (W.) barberi* (Skinner), *P. (W.) equihuai* Westcott, *P. (W.) knulli* (Barr), and *P. (W.) trilobata* Westcott. One new synonym is proposed: *P. mexicana* Fisher (= *P. sonora* (Barr)). All taxa included are described and information on variation, type localities, distribution, biology, and comparisons are given for each species. A key to subgenera and species is provided. Habitus photos for all species and selected generic outgroup taxa, drawings of selected key characters, distributional maps and a cladogram of hypothetical generic relationships are presented. Tables of examined taxa, characters and character states and a character state matrix are included.

**Keywords:** Coleoptera, Buprestidae, Polycestinae, Tyndarini, *Paratyndaris*, taxonomy, phylogeny, synonymy, new subgenus, new species, North America, Central America



## Introduction and taxonomic history

The genus *Paratyndaris* was described by Fisher (1919) with *Tyndaris olneyae* Skinner, 1903 designated as the type species. In the same work, Fisher discussed the five species earlier described in the genus *Tyndaris* Thomson, 1857 (type species: *Ptosima planata* Laporte & Gory, 1835): *T. cincta* Horn, 1885; *T. barberi*, *T. chamaeleonis*, *T. olneyae* and *T. prosopis*, all Skinner, 1903, transferred them to *Paratyndaris* and added a sixth species, *P. coursetiae* Fisher, 1919. Fisher continued by discussing the apparent similarity of the South American species of *Tyndaris* to *Acmaeodera* Eschscholtz, 1829, while he opined that *Paratyndaris* "is mostly closely allied to *Ptosima*" Dejean, 1833. Additional species have been described by the following authors: Barr (1972), Bílý (1987), Dozier (1988), Fall (1934), Fisher (1933, 1940, 1949), Knull (1937, 1938, 1941), Parker (1947) and Westcott (2000).

Cobos (1955) described the tribe Tyndarini in which he placed *Tyndaris* and *Ancylotela* Waterhouse, 1882 (type species: *A. oculata* Waterhouse, 1882), the latter under which he synonymized *Paratyndaris*. Several years later, Cobos (1959) divided Tyndarini into two subtribes, Tyndarae (sic!) for *Tyndaris* and *Ancylotela* and Tylacheniae (sic!) for *Tylauchenia* Burmeister, 1872 (type species: *Buprestis crassicolis* Laporte & Gory, 1837) and a new genus *Paraancylotela* (type species: *P. nobilissima* Cobos, 1959). Barr (1972) followed Cobos' opinion by proposing five new species from North America in *Ancylotela* and presenting the only key available for the 21 species known at that time. Cobos (1973) elevated the subtribe Tylacheniae to the tribe Tylauchenini, included *Tylauchenia*, *Ancylotela* and a new genus *Neocypetes* Cobos, 1973 (type species: *Tylauchenia guttulata* Fairmaire & Germain, 1858). Later, Cobos (1980) restructured Tyndarini including three genera: *Paraancylotela* Cobos, 1959, *Bordonia* Cobos, 1980 (type species: *B. venezolana* Cobos, 1980) and *Tyndaris*, under which he then synonymized *Paratyndaris* as one of five subgenera. Of the five subgenera, three were newly proposed, but only one, *T. (Knulliella)* was monotypic and thus valid; the other two subgenera are invalid without type species designation and will be discussed below. The Zoological Record volume for 1980 (1983, p. 293) listed these two subgenera as valid by type species designations that are incorrect. Bílý (1987) and Dozier (1988) followed Cobos and proposed new species, in their respective works, in *Tyndaris*. The most recent addition to this grouping was the description of the genus *Pelycothorax* by Bellamy and Westcott (1996) and a phylogenetic prediction of the relationships within the Tyndarini.

With regard to the higher classification, the system of Kerremans (1893) has evolved through the version presented in the last world catalogue by Obenberger (e.g. 1926) and was further modified in the checklist by Bellamy (1985) which followed changes proposed earlier by Cobos (1980) and Nelson (1982). Hołyński (1993) considered five subtribes within the Tyndarini: Tyndarina, Tylaucheniina, Acherusiina Cobos, 1955, Astraeina Cobos, 1980 and Prospheerina Cobos, 1980. The most recent expression of grouping and relationship is from the work of Volkovitsh & Hawkeswood (1999) and Volkovitsh (2001)

which recognized four subtribes in Tyndarini: Tylaucheniina, Tyndarina, Mimicoclytrina Bellamy, 2003 (= Acherusiina) and Pseudacherusiina Cobos, 1980. A summary of the entire higher classification of Buprestidae is found in the recent work by Bellamy (2003).

Biological and distribution notes on species of *Paratyndaris* have been published by Barr (1941), Burke (1918), Cazier (1951a, 1951b), Helfer (1970), Knull (1937, 1950), Nelson (1962, 1965, 1987), Nelson & Westcott (1976), Nelson, *et al.* (1981), Parker (1947), Van Dyke (1945), Vogt (1949), Walters & Bellamy (1982, 1990) and Westcott, *et al.* (1990). Notes on species of *Paratyndaris* involved in mimicry complexes were by Hespeneheide (1996). Descriptions of morphological features of larvae or wing venation, respectively, were by Burke (1917) and Good (1925). Previous listings for species, either as *Tyndaris* or *Paratyndaris*, in earlier catalogs and checklists were: Blackwelder (1939, 1944), Blackwelder & Blackwelder (1948), Chamberlin (1926), Kerremans (1892, 1902, 1907), Leng (1920), Leng & Mutchler (1927) and Obenberger (1926).

## Material and methods

Specimens were borrowed from many large public and private collections, and the collection codens are as given at the Bishop Museum website ([www.bishopmuseum.org/bishop/ento/codens-r-us.html](http://www.bishopmuseum.org/bishop/ento/codens-r-us.html)) and are listed under Acknowledgments. The primary type specimens of all the species were examined.

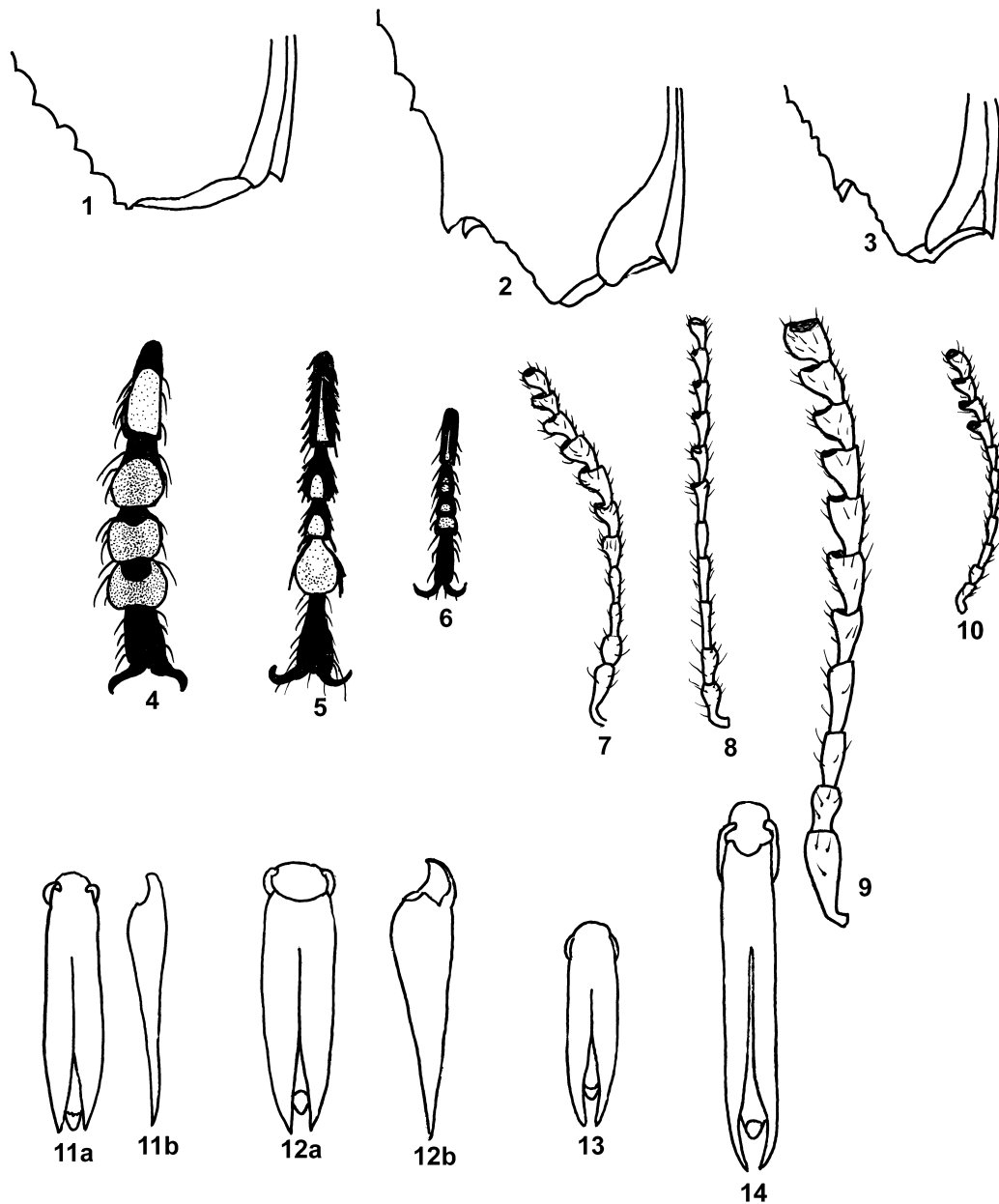
Male and female genitalia were either extracted from fresh specimens or from relaxed dry specimens. The genitalia were mounted on card points or remain attached to the specimens.

Measurements of length were made from the front of the head to the apex of the abdomen, and width at the pronotum. For species with long series available, the number of specimens measured to give the average size was arbitrarily limited to 25. Habitus photographs were made with a Spot Insight video camera (Model #3.2.0) through a Nikon SMZ1500 stereomicroscope and edited using Adobe Photoshop 7. Although the images were taken through the same system, some inconsistency is apparent in the color figures. Even though the white balance values and lighting used during the capture of the entire series of habitus images were attempted at consistent levels, and thereafter each image was adjusted using the Photoshop "Auto Levels" option, some of the images appear to be either over- or underexposed. Thus, despite our best efforts, the color plates may not represent the actual color for all specimens illustrated. Another inconsistency is the appearance of the scale bars on the plates, which were stamped by the Spot Insight software at the time each individual image was captured; although some appear to be in bold, while others do not, the relative scales do serve to represent the size differences between the specimens illustrated.

Data on specimen labels are indicated by (h) for “handwritten” and (p) for “printed”, and the forward slash (/) mark separates data from individual labels. Localities for distribution under each species are listed alphabetically. Distributional and biological records without citations are to be regarded as new and collections are indicated for them. For previously described species, we list the range of dates that adults have been collected from label data. In some cases, only month data were given and in several instances a particular month either begins or ends the range of known collection dates, e.g. May 16 to September [*P. (K.) antillarum* Fisher]. We have decided to present all Mexican place names without diacritical marks, where needed, due to the inconsistency of examined label data and our incomplete knowledge of those place names requiring such, rather than to be inconsistent herein.

### Terminology

A shift in terminology is accepted in this work and follows suggestions from J. F. Lawrence (in litt.) with the following reasoning presented to help readers and colleagues understand the changes. In recent years, the major ventral regions of the buprestid body have been variously termed “sternites” (singular/plural) or “sternum” (singular)/ “sterna” (plural). However, with continuing research detailing the entire ventral body wall, it has become evident that there are concealed portions of these “sternites” and thus a more discriminating term for just the visible portion was needed; the term chosen is “ventrite”. That this is necessary is shown by the fact that Ventrite 1 in most Polyphaga is Sternite 3, but in Adephaga the same ventrite is Sternite 2. The other major changes in the nomenclature of ventral sclerites are the terms “mesoventrite” and “metaventrite”. In this case, the true sternum has become completely invaginated in beetles and what is usually termed “mesosternum” and “metasternum” respectively, is in fact a mixture of pleural and sub-coxal structures, i.e. paired katepisterna and preepisterna, variously fused together. The median longitudinal “suture” or discrimen on the metathorax represents the site of the invagination (lost on the mesothorax in most, but not all, beetles). These changes can be found in use in Lawrence, *et al.* (1999). For the prothorax, the terminology should follow the abdominal terminology precedent, but has not yet been defined or discussed in the literature. The former “prosternum” has a similar situation, although even further modified, as there is no trace of the discrimen and separated endosternites, because the sternum is gone or at least internal, thus “proventrite” is an appropriate term, while on the abdomen “ventrite” is used mainly because of the concealment and loss of the first two true sternites in most Polyphaga.



**FIGURES 1–14**, key figures of *Paratyndaris* (s. str.), *P. (Knulliella)* and *P. (Waltersia)* spp.: Figs. 1–3, apices of left elytron, dorsal aspect: Fig. 1, *P. (K.) suturalis* Fall; Fig. 2, *P. (s. str.) olneyae* (Skinner); Fig. 3, *P. (W.) barberi* (Skinner). Figs. 4–6, protarsi, ventral aspect: Fig. 4, *P. (K.) suturalis* Fall; Fig. 5, *P. (s. str.) olneyae* (Skinner); Fig. 6, *P. (W.) barberi* (Skinner). Figs. 7–10 antennae, males: Fig. 7, *P. (K.) suturalis* Fall; Fig. 8, *P. (s. str.) olneyae* (Skinner); Fig. 9, *P. (s. str.) grassmani* Parker; Fig. 10, *P. (W.) barberi* (Skinner). Figs. 11–14: male genitalia: Fig. 11, *P. (K.) pulchra*, sp. nov., (a) dorsal, (b) lateral aspect; Fig. 12, *P. (K.) similis*, sp. nov., (a) dorsal aspect, (b) lateral aspect; Fig. 13, *P. (s. str.) lateralis* (Barr), dorsal aspect; Fig. 14, *P. (s. str.) paralateralis*, sp. nov., dorsal aspect.

In the genus *Paratyndaris*, the shape of the body varies from the typical robust strongly cuneate form of the type species, *Paratyndaris olneyae* (Skinner) to relatively slender more cylindrical forms, as seen in *Paratyndaris lateralis* (Barr). There is much variation in the coloration from immaculate black to iridescent green species to maculate species in which there is interspecific variation in the color and pattern of the maculae.

The variation in the number of serrate antennomeres in *Paratyndaris* was heavily utilized by Cobos (1980) in defining his subgenera of *Tyndaris*. We have studied this pattern and while it has proved helpful, it has not been relied on to the extent used by Cobos. There appears to be no significant sexual difference in the antennae.

In the form of the pronotum with various midline depressions from broad to groove-like or evenly convex without depressions and surface sculpturing from finely punctato-asperate to coarsely muricate, a means of defining species and helping to define subgenera is seen. There are also some differences observed in the distinctness and/or configuration of the lateral margin of the pronotum.

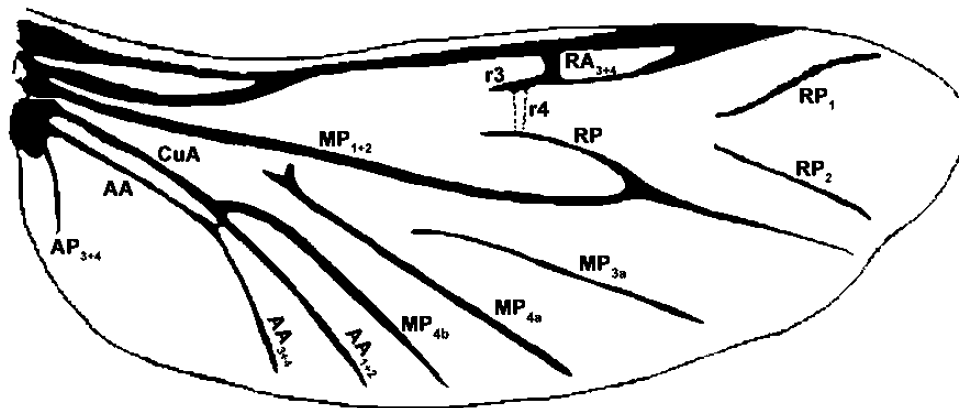
The elytra present some variable features that have proved useful in indicating subgeneric or specific limits. The strength and shape of the subhumeral lobe has been helpful as have variations in teeth along the lateral margin and at the apex of the elytra. In some species there are variable rows of interstrial dentations on posterolateral regions of the disk.

Some modifications on the ventral surface likewise have been helpful in defining species. The amounts and nature of pubescence can be useful and also the shape of the proventrite. One of the most useful modifications in separating species but especially in indicating sex is the presence, size and disposition of median lobes on the posterior margins of visible abdominal ventrites 2, sometimes 3, and rarely 4. The apex of ventrite 5 shows some variation as well.

The metathoracic wing of *Paratyndaris* was first discussed by Good (1925) where the wing of *P. (Knulliella) chamaeleonis* (Skinner, 1903) was illustrated. Since the terminology of wing veins and features has evolved beyond that used by Good, we have followed the more recent work of Kukalová-Peck & Lawrence (1993). The hind wing of *P. (Knulliella) chamaeleonis* (Skinner, 1903) is illustrated in Fig. 15 and is distinguished from putative genus-group relatives by the combination of the following features: the radial cell ( $RA_{3+4}$ ) is present, the radial cross-vein ( $r_4$ ) connects between a second cross-vein ( $r_3$ ) and the radial posterior vein (RP) and there is no closed cell in the cubitus anal region. The other particular veins are detailed in Fig. 15.

Tarsal pulvilli show differences in the shape and degree of development that are useful in delineating species and to a partial degree, subgenera.

The male genitalia in *Paratyndaris* do not exhibit broad variation in shape; however, in a few instances that general shape has helped in defining species. The ovipositor is relatively simple and was not relied on to distinguish species.



**FIGURE 15**, metathoracic wing, *Paratyndaris* (*Knuliella*) *chamaeleonis* (Skinner, 1903): AA = Anal anterior, plus distal forks (AA<sub>1+2</sub>, AA<sub>3+4</sub>); AP<sub>3+4</sub> = Anal posterior; CuA = Cubitus anterior; MP = Media posterior, plus branches (MP<sub>1+2</sub>, MP<sub>3a</sub>, MP<sub>4a</sub>, MP<sub>4b</sub>); RA<sub>3+4</sub> = Radial cell; RP = Radius posterior, plus branches (RP<sub>1</sub>, RP<sub>2</sub>); r<sub>3</sub> and r<sub>4</sub> = Radial crossveins (digital rendering of Good, 1925, Fig. 29; terminology follows: Kukalová-Peck & Lawrence, 1993).

## Taxonomic discussion

### Genus *Paratyndaris* Fisher, 1919

*Paratyndaris* Fisher, 1919:92; Chamberlin, 1926:224; Obenberger, 1926:55; Leng & Mutchler, 1927:30; Knull, 1937:252; Blackwelder, 1939:42; 1944:307; Blackwelder & Blackwelder, 1948:20; Bellamy, 2003:25.

*Tyndaris*: Horn, 1885:147; Skinner, 1903:236; Kerremans, 1907:556; Burke, 1917:Pl. V, Fig. 4; Leng, 1920:178; Lesne, 1937:166; Cobos, 1980:38; Nelson, 1981:444; Bellamy, 1985:410; Volkovitch & Hawkeswood, 1999:309.

*Ancylotela*: Cobos, 1955:13; Arnett, 1962:485; Helfer, 1970:5; Barr, 1972:92.

Type species: *Tyndaris olneyae* Skinner, by original designation.

Gender: feminine.

**Description.** Body cylindrical, narrowed posteriorly. Head weakly convex; clypeus moderately arcuately or triangularly emarginate; antennal cavities small, located near eyes; antennae slender, not reaching middle of pronotum when laid alongside, serrate from antennomere 6, sometimes 5 or 7, and occasionally 8; antennomeres 1 and 2 robust oval, 3 and 4 slender, 11 oval. Pronotum wider than long, convex, sides arcuate. Scutellum small oblong. Elytra narrowed posteriorly, shorter than abdomen, apex truncate, with or without preapical teeth. Tarsal claws swollen or with weak tooth near base. Last visible abdominal ventrite acuminate, projecting well beyond elytra. Male genitalia with basal piece much

reduced; parameres slender, relatively unmodified without setae; median lobe simple. Ovipositor simple, relatively unmodified.

**Host Plants.** Of the 36 species recognized as belonging to the genus *Paratyndaris*, larval habits have been recorded for only seven. All rearings have been made from desert shrubs of the family Fabaceae which is the family of plants on which adults have most frequently been found, especially within the subgenera *P. (Paratyndaris)* and *P. (Waltersia)*. Two of the species in the subgenus *P. (Knulliella)* about which we have adult host data are *P. suturalis* Fall, found on species of *Conocarpus* and *Laguncularia* (Combretaceae) and *Rhizophora* (Rhizophoraceae) and *P. mojito* (Bílý), taken on species of *Coccoloba* (Polygonaceae).

**Distribution.** Species of the subgenus *P. (Paratyndaris)* are found in the desert areas of southern California, Nevada and Utah in the north, south to Baja California Sur, the high and Sonoran deserts of mainland Mexico and in thorn forests as far south as the state of Oaxaca. The species of the subgenus *P. (Waltersia)* are known only from southern California, southern Nevada, Arizona and the Baja California peninsula. The subgenus *P. (Knulliella)* has species found in more tropical areas with one, *P. chamaeleonis* (Skinner), found in southern Texas and localities in the northern Mexican states of Nuevo Leon and Tamaulipas. Other species of this subgenus are found from the Florida Keys and South Bimini Island in the north, south through Cuba, Dominican Republic, Yucatan and Quintana Roo in Mexico, to Guatemala in the south.

#### Key to subgenera and species of *Paratyndaris*

- 1 Elytral apex truncate or roundly truncate without preapical teeth on lateral margin (Fig. 1); pronotum strongly convex without midline groove ..... subgenus (*Knulliella*) ... 2
- Elytral apex with preapical teeth on lateral margin (Fig. 2, 3); pronotum various 7
- 2(1) Elytra maculated, without dentate elevation at apical  $\frac{1}{3}$ ; pubescence short, obscure ..... 3
- Elytra without maculae, with small dentate elevation at apical  $\frac{1}{3}$  (Fig. 25c); elytral pubescence moderately long, readily apparent ..... 5
- 3(2) Elytra with yellow maculae usually near scutellum, near middle and near apical  $\frac{1}{3}$  (Fig. 29, 30) ..... 6. *chamaeleonis* (Skinner)
- Elytra with red to red-orange maculae around humeri and near apical  $\frac{1}{3}$  ..... 4
- 4(3) Dentations along lateral margin of elytra only near apex; proventrite strongly convex; pubescence of ventral surface sparse; male genitalia mildly swollen basally (Fig. 11b) ... (Mexico: Yucatan, Quintana Roo) ..... 4. *pulchra*, **sp. nov.**
- Dentations along lateral margin of elytra begin midway to apex; proventrite less strongly convex; pubescence of ventral surface moderate; male genitalia distinctly swollen basally (Fig. 12b) ... (Guatemala) ..... 5. *similis*, **sp. nov.**

- 5(2) Elytral suture greenish-black (Fig. 27)...(Dominican Republic) ..... 3. *antillarum* Fisher
- Elytral suture cupreous-violet ... (U.S.A.: Florida Keys, Bahamas: South Bimini Island, Cuba) ..... 6
- 6(5) Elytral suture feebly violet; punctation of elytra forming only indistinct rows on disk; elytral pubescence long and dense (Fig. 26) ..... 2. *mojito* Bílý
- Elytral suture bright cupreo-violet; punctation of elytra forming distinct rows; elytral pubescence moderate and less dense (Fig. 25a) ..... 1. *suturalis* Fall
- 7(1) Color of elytra variable, but not predominantly yellow, pubescence of elytra more evident; pronotum various; antennae serrate from antennomere 6, occasionally 5 or 7 (Fig. 8, 9) ..... subgenus (*Paratyndaris*) ... 8
- Color of elytra predominantly yellow (white or cream in life) or extensively so; hair-like pubescence of elytra very short and inconspicuous; pronotum with disk usually with broad shallow discal depression or flattened, gibbose parts asperate or muricate; antennae serrate from antennomere 7 or 8 (Fig. 10) ..... subgenus (*Waltersia*) **subgen. nov.** ... 37
- 8(7) Pronotum broadly subflattened at middle or with a broad shallow median depression; body clothed with recumbent scales (Fig. 56) ..... 32. *albofasciata* Knull
- Pronotum convex with or without midline groove; body clothed with hair-like setae ..... 9
- 9(8) Elytra immaculate ..... 10
- Elytra maculate ..... 15
- 10(9) Pronotum with midline groove ..... 11
- Pronotum evenly convex, without midline groove ..... 14
- 11(10) Antennae serrate from antennomere 7; length less than 8.0 mm ..... 31. *turbida*, **sp. nov.**
- Antennae serrate from antennomere 6, rarely 5; length 8.0 mm or more ..... 12
- 12(11) Elytral intervals strongly convex and glabrous anteriorly and laterally (Fig. 46) ... 22. *costata*, **sp. nov.**
- Elytral intervals not strongly convex and partially obscured by pubescence ..... 13
- 13(12) Midline groove of pronotum distinct from posterior margin to beyond middle; elytral lobe concolorous with rest of elytra ...(U.S.A.: southern Texas) ..... 20. *crandalli* Knull
- Midline groove of pronotum faint; elytral lobe with iridescent rose color ... (Mexico: Guerrero, Oaxaca, Puebla) ..... 19. *westcotti*, **sp. nov.**
- 14(10) Body elongate, subparallel; elytral lobe with purple tint; elytra with longitudinal rows of teeth on lateral intervals toward apex ..... 30. *uniformis*, **sp. nov.**
- Body robust, subcuneate; elytral lobe with iridescent rose color; elytral intervals without teeth ..... 11. *dozieri*, **sp. nov.**
- 15(9) Pronotum with midline groove ..... 16



- Pronotum evenly convex without midline groove ..... 24
- 16(15) Elytral maculae that are confined to lateral margin may extend on disk ..... 17
- Elytra with discal maculae in addition to lateral ones ..... 20
- 17(16) Elytra with alternate interstitial spaces more strongly convex and glabrous...(Mexico: Puebla) ..... 21. *subcostata* (Barr)
- Alternate interstitial spaces neither more strongly convex nor glabrous ..... 18
- 18(17) Elytra with longitudinal rows of teeth on posterolateral interstitial spaces ..... 24. *cincta* (Horn)
- Elytra lacking longitudinal rows of interstitial teeth ..... 19
- 19(18) Elytra with one pair of elytral maculae; antennae serrate from antennomere 6 ... (Mexico: Hidalgo, San Luis Potosi) ..... 18. *verityi*, **sp. nov.**
- Elytra with two pair of elytra maculae; antennae serrate from antennomere 7 ... (Mexico: southern Baja California) ..... 15. *variabilis* Westcott (in part)
- 20(16) Elytra with longitudinal rows of teeth on posterolateral interstitial spaces ..... 21
- Elytra lacking longitudinal rows of teeth on interstitial spaces ..... 23
- 21(20) Elytral maculae reddish in color ..... 22
- Elytral maculae yellow in color (Fig. 47) ..... 23. *prosopis* (Skinner)
- 22(21) Midline groove of pronotum distinct and extending to anterior  $\frac{1}{3}$  or farther; antennae serrate from antennomere 5 ..... 25. *grassmani* Parker
- Midline groove of pronotum indistinct and visible only near posterior margin; antennae serrate from antennomere 6 ..... 26. *mexicana* Fisher (in part)
- 23(20) Elytra with irregular yellow maculae ..... 7. *anomalis* Knull (in part)
- Elytra with regular red maculae (sometimes yellowish) ..... 17. *olneyae* (Skinner)
- 24(15) Antennae distinctly serrate from antennomere 7 ..... 25
- Antennae distinctly serrate from antennomere 6 ..... 29
- 25(24) Each elytron with one macula along lateral margin ..... 26
- Each elytron with two maculae along lateral margin...(Mexico:southern Baja California) ..... 15. *variabilis* Westcott (in part)
- 26(25) Elytra with yellow maculae ..... 27
- Elytra with red or reddish-orange maculae ..... 28
- 27(26) Robust; yellow maculae of elytra large and variable ... 7. *anomalis* Knull (in part)
- Slender; yellow maculae of elytra as variable small spots, sometimes with one red lateral macula ..... 12. *coursetiae* Fisher (in part)
- 28(26) Robust; elytra with 4 red maculae arranged transversely just before middle (occasionally medial ones absent); pronotal disk finely sculptured ..... 8. *tucsoni* Knull
- Relatively slender; each elytron with one red macula on lateral margin before middle; pronotal disk coarsely sculptured ..... 12. *coursetiae* Fisher (in part)
- 29(24) Elytra with longitudinal rows of teeth on lateral intervals toward apex ..... 30
- Elytra without longitudinal rows of teeth on lateral intervals toward apex ..... 32
- 30(29) Elytra with bluish tint and with one pair of red maculae located at or just before

- middle ... (Mexico: Guerrero, Jalisco, Michoacan, Oaxaca) ..... 31
- Elytra black with 3 pairs of red maculae, one located subhumeraly, another laterally at middle and another near scutellum ... (Mexico: Sinaloa, Sonora) ..... 26. *mexicana* Fisher (in part)
- 31(30) Elytra moderately clothed by recumbent and semirecumbent white setae; male genitalia moderate in length and distinctly swollen near base (Fig. 53c) ..... 28. *nelsoni* (Barr)
- Elytra sparsely clothed by short inconspicuous white setae; male genitalia elongate and not distinctly swollen near base (Fig. 54c) ..... 29. *mimica*, **sp. nov.**
- 32(29) Large species, usually over 10 mm; elytra with one large macula extending from lateral margin to near suture (Fig. 52) ... (Mexico: Michoacan) 27. *robusta* (Dozier)
- Smaller species, less than 10 mm; elytra maculae different ..... 33
- 33(32) Elytra with 4 red spots arranged transversely just before middle (Fig. 40) ..... 16. *quadrinotata* Knull
- Elytra with one red spot confined to lateral margin ..... 34
- 34(33) Robust; pronotum finely asperate ..... 35
- Slender; pronotum coarsely asperate ... (mainland Mexico) ..... 36
- 35(34) Smaller species (5.1–7.3 mm long); disk of pronotum densely punctato-asperate .  
..... (Mexico: southern Baja California) ... 10. *peninsularis* Westcott
- Larger species (6.3–9.3 mm long); disk of pronotum moderately transversely asperate ... (U.S.A.: southwest Texas) ..... 9. *acaciae* Knull
- 36(34) Background color usually with cupreous tint; male genitalia short (Fig. 13) ... (Mexico: Sonora to Oaxaca) ..... 13. *lateralis* (Barr)
- Background color black; male genitalia elongate slender (Fig. 14) ... (Mexico: Michoacan) ..... 14. *paralateralis*, **sp. nov.**
- 37(7) Pronotum vaguely flattened at middle, finely evenly densely asperate on either side of middle; males with abdominal ventrites 2, 3, and 4 lobed ..... 36. *trilobata* Westcott
- Pronotum with broad shallow median depression, muricate on either side of depression; males with abdominal ventrites 2 and sometimes 3 lobed ..... 38
- 38(37) Antennae distinctly serrate from antennomere 7; elytral punctures larger, intervals flattened or not distinctly convex; males with abdominal ventrites 2 and 3 lobed ..  
..... 35. *equihuai* Westcott
- Antennae distinctly serrate from antennomere 8; elytra punctures finer, intervals rather distinctly convex; males with only abdominal ventrite 2 lobed ..... 39
- 39(38) Pronotum with lateral margins indistinct, usually with small smooth elevated area anterior to hind angles ... (Mexico: northern Baja California, U.S.A.: south-eastern California, western Arizona, southern Nevada) ..... 34. *knalli* (Barr)
- Pronotum with lateral margins distinct, without smooth elevated area anterior to hind angles... (U.S.A.: mainly in central Arizona) ..... 33. *barberi* (Skinner)

*Tyndaris* (*Knulliella*) Cobos, 1980:41; Nelson, *et al.* 1981:148; Bellamy, 1985:411; Bílý, 1987:45.

Type species: *Paratyndaris suturalis* Fall, by monotypy.

Antennae serrate with sensory fossae from antennomere 5 (Fig. 7). Pronotum strongly convex, without midline groove; disk commonly with some transverse asperites; lateral carina distinct. Elytral apex truncate, without preapical teeth. Abdominal ventrite 5 terminating in sharp acute spine. Tarsomeres 1–4 with well developed pulvilli.

### 1. *Paratyndaris* (*Knulliella*) *suturalis* Fall, 1934

(Figs. 1, 4, 7, 16, 25)

*Paratyndaris suturalis* Fall, 1934:193; Knull, 1937:256; Blackwelder, 1939:42; Cazier, 1951a:5.

*Ancylotela suturalis*: Barr, 1972:106 (in key).

*Tyndaris suturalis*: Cobos, 1980:41, Fig. 15 (antenna); Nelson, *et al.* 1981:148; Bílý, 1987:Fig. 3 (aedeagus); Akiyama & Ohmomo, 2000:Pl. 10, Fig. 108 (adult).

Diagnosis. Purplish-black with green reflections, elytra immaculate, iridescent green with suture broadly brightly cupreous-violet; sparsely clothed throughout by short semirecumbent white setae; antennae serrate from antennomere 5 (Fig. 7); elytral disk with dentate elevation at apical  $\frac{1}{3}$ , apex dentately roundly truncate, without preapical lateral teeth; tarsomeres 1–4 with well developed pulvilli.

Type Specimens. Described from a single female specimen. The holotype (MCZC) is labelled as follows: “Big Pine Key Fla VII-20-29 (h)/ IV.B.XIII p. 87 (h)/ TYPE *Paratyndaris suturalis*/ (red) M.C.Z. Type (p) 24432 (h)/ H. C. Fall COLLECTION (p)”.

Variation. There is some variation in the amount of purple and/or green in the background color, in the brightness of green on the elytra and in the width of the sutural cupreo-violet. The males vary from 4.8–7.1 mm long ( $\bar{x}$  = 6.0 mm,  $n$  = 25) and 1.8–2.8 mm wide ( $\bar{x}$  = 2.4 mm,  $n$  = 25); females from 5.5–8.5 mm long ( $\bar{x}$  = 7.2 mm,  $n$  = 25) and 2.3–3.5 mm wide ( $\bar{x}$  = 3.0 mm,  $n$  = 25); 259 specimens were studied in total.

Distribution (Fig. 16). **UNITED STATES**. FLORIDA: Monroe Co., Big Pine Key (Fall, 1934), Crawl key, Key Largo, Tavernier (Nelson, *et al.* 1981), Long Key (FMNH), Lower Matecumbe Key (CSCA), Virginia Key (Nelson, *et al.* 1981). **BAHAMA ISLANDS**. SOUTH BIMINI ISLAND (Cazier, 1951a). **CUBA**. ORIENTE PROVINCE: Holquin (GHNC).

Biology. Reared from *Rhizophora mangle* L. Adults have also been collected on *Conocarpus erectus* L., and *Laguncularia racemosa* Gaertn. (all host records, Nelson, *et al.* 1981). They have also been taken as prey of *Cerceris cervarae* Giner Marí in CUBA: Monte Cupei, Holquin (GHNC). Adults have been collected from May 13 to August 22.



**FIGURE 16**, known geographic distribution of: *Paratyndaris (Knulliella) suturalis* Fall (open circles - ●); *P. (K.) mojito* Bílý (open triangles - △); *P. (K.) antillarum* Fisher (+); *P. (K.) pulchra*, sp. nov. (open squares - □); *P. (K.) similis*, sp. nov. (solid circles - ●); *P. (K.) chamaeleonis* (Skinner) (solid triangles - ▲).

**Comparisons.** This species is most closely similar to *P. mojito*, a slightly less robust species that has the green of the elytra dull as is the purplish suture, the elytral punctures smaller and more confused and pubescence denser and composed of longer white hairlike setae; and *P. antillarum* that has the elytra dark purple instead of green and a greenish suture instead of bright cupreous-violet.

**2. *Paratyndaris (Knulliella) mojito* (Bílý, 1987), comb. nov.**  
(Figs. 16, 26)

*Tyndaris (Knulliella) mojito* Bílý, 1987:45; Figs. 1 (outline, holotype), 2, 3 (male aedeagus), 4 (ovipositor).

Diagnosis. Black with purplish and greenish reflections, elytra immaculate with dull green luster with suture narrowly violet; moderately densely clothed by medium length semirecumbent white hairlike setae; antennae serrate from antennomere 5; elytral disk with dentate elevation at apical  $\frac{1}{3}$ , apex roundly truncate, without preapical lateral teeth; tarsomeres 1-4 with well developed pulvilli.

Type Specimens. Described from a series of both sexes. The holotype male (NMPC) is labelled as follows: "CUBA, Prov. Santiago Daiquiri, 1.-4.6.1985, S. Bílý leg. (p)/ (red) HOLOTYPUS (p) Tyndaris (Knulliella) mojito sp. n. ♂ (h) S. Bílý det. 19 (p) 86 (h)".

Variation. From the original description there is some variation in the distinctness of the violet tint, and some difference in length and density of the pubescence. In size the length varies from 4.9–7.5 mm; and width from 2.0–3.1 mm (Bílý, 1987).

Distribution (Fig. 16). Known from only the type locality in Santiago Province, Cuba.

Biology. The type series was beaten from the dead branches of *Coccoloba uvifera* Jacq.

Comparisons. This species is closely similar to *P. suturalis* (under which it is compared) and *P. antillarum* from which it can be distinguished by the color of the elytra that is greenish with purple suture in *P. mojito* and purplish with greenish suture in *P. antillarum*, and the pubescence that is much longer and more dense in *P. mojito*.

### 3. *Paratyndaris* (*Knulliella*) *antillarum* Fisher, 1940

(Figs. 16, 27)

*Paratyndaris antillarum* Fisher, 1940:156; Blackwelder, 1944:307.

*Ancylotela antillarum*: Barr, 1972:106 (in key).

Diagnosis. Purplish-black, elytra immaculate, slightly more purplish with greenish suture; sparsely clothed throughout by short semirecumbent white setae; antennae serrate from antennomere 5 (5 weakly); elytral disk with dentate elevation at apical  $\frac{1}{3}$ , apex roundly truncate, without preapical lateral teeth; tarsomeres 1–4 with well developed pulvilli.

Type Specimens. Described from two specimens found dead. The holotype female (MCZC) is labelled as follows: "S. side Lake Enriquillo Sept. 38, Dom. Rep. Darlington (p)/ found dead (h in pencil)/ (red) Type No. (p) *P. antillarum* Fisher (h)/ (red) M.C.Z. Type (p) 23696 (h)/ *Paratyndaris antillarum* Fisher (h)".

Variation. Little variation is observed in the short series available (two males and three females). The males varied from 6.3–7.0 mm long and 2.6–2.8 mm wide; females from 6.0–6.6 mm long and 2.4–2.6 mm wide.

Distribution (Fig. 16). **DOMINICAN REPUBLIC.** MONTE CRISTI PROVINCE: 5–13 km N Villa Elisa (FSCA, GHNC, RLWE); PERAVIA PROVINCE: 12 km SE Rio Ocoa (GHNC, RLWE); S side Lake Enriquillo (type locality); SAN JUAN PROVINCE: 16 km SE San Juan (CLBC).

Biology. Nothing is known about the habits of this species. Adults have been collected from May 16 to an unspecified date in September.

Comparisons. This immaculate species is most similar to *P. suturalis* and *P. mojito*, under each of which it is compared.

**4. *Paratyndaris (Knulliella) pulchra* Nelson & Bellamy, sp. nov.**

(Figs. 11, 16, 28)

Diagnosis. Black, elytra with iridescent blue along lateral portions and two red maculae, one beginning on lobe of elytra and another at apical 2/5; pubescence sparse and short; antennae serrate beginning with antennomere 5; elytra without dentate swelling near apical third, lateral margins dentate only apically, apex truncate without preapical lateral teeth; proventrite strongly convex; male genitalia weakly swollen basally.

Description, holotype male. Size, 7.3 mm x 2.7 mm. Color of head, pronotum and below black, elytra black with aeneous tint on disk toward base, along suture and at extreme apex, with iridescent blue from humeri covering lateral six intervals extending to near suture in apical 2/5, red macula on elytral lobe extending to basal 2/5 and a transverse red macula at apical 7/10 extending from near lateral margin to medial third interval. Head moderately densely punctate with medium sized punctures, with oblique rugae on lower front and with sparse semirecumbent white setae that are longer and more apparent on lower front; clypeus broadly triangularly emarginate; antennae reaching to near anterior ¼ of pronotum when laid alongside, antennomeres serrate with sensory fossae from 6. Pronotum slightly wider than long, widest at middle; anterior margin transverse; sides in dorsal view arcuate, narrowest anteriorly; lateral margin distinct, impunctate, extending arcuately to near anterior margin; posterior margin converging weakly posteriorward toward midpoint with slight notch before scutellum; disk strongly convex without midline groove; surface asperate and punctate medially, becoming densely punctate laterally, background shagreened, with few inconspicuous short semirecumbent setae laterally. Scutellum slightly elongate oval, glabrous, surface microsculptured around margins, disk with two large punctures. Elytra subequal in width to pronotum at base; sides viewed dorsally subparallel in basal 2/3 then arcuately converging to apex; lateral margins, viewed from side, obtusely rounded at base, strongly lobed below humeri, weakly dentate apically; without preapical teeth, sutural tooth small acute, tooth of sutural ridge moderate and slightly elevated; apex dentately truncate; disk moderately convex, slightly swollen toward base, flattened toward suture; striae distinct, punctures moderately large especially laterally; intervals flat medially becoming convex and costate laterally, punctures smaller than those of striae; surface glabrous. Ventral surface moderately densely punctate, punctures larger laterally, abdomen more finely punctate, pubescence sparse, short, recumbent, longer and semirecumbent medially on proventrite; proventrite with anterior margin broadly arcuately emarginate, disk and process strongly convex; abdominal ventrite 2 with

broad brown lobe extending over 1/6 of ventrite 3; ventrite 5 triangular, with blunt sub-marginal carina projecting beyond lateral margin in basal 1/2, apex sharply pointed and slightly turned upward, disk with series of sulci laterally. Legs sparsely finely punctate with few recumbent and semirecumbent white setae; tarsi with well developed pulvilli on tarsomeres 1–4; tarsal claws swollen toward base. Male genitalia weakly swollen basally, Fig. 11b.

Female. Size, 6.8 mm x 2.6 mm. Similar to males but black colors with stronger bluish tint and red maculae slightly larger and with small red spot at middle of base; abdominal ventrite 2 without lobe.

Type Specimens. Described from one male and one female. Holotype male (UNAM) labeled “MEXICO: Yucatan Chichen Itza 25.v.2000 J. Cope misc. beating/ Ex Coll. C. L. Bellamy (CLBC)/ (red) HOLOTYPE *Paratyndaris pulchra* Nelson & Bellamy (p)”. One female paratype as follows: MEX., Quintana Roo, 3 km N X-Thobil, 06/17/90, J. Huether. Paratype deposited in GHNC.

Variation. As indicated in descriptions.

Distribution (Fig. 16). Known from only two Mexican localities in the adjacent states of Quintana Roo and Yucatan.

Biology. No data is available about this species adult or larval hosts.

Comparisons. This species is closely similar to *P. similis* under which it is compared.

Etymology. The name was chosen for the beauty of this species.

##### **5. *Paratyndaris (Knulliella) similis* Nelson & Bellamy, sp. nov.**

(Figs. 12, 16, 29)

Diagnosis. Purplish-black with iridescent blue along lateral margin and two red maculae, one on lobe and another at apical third; pubescence moderate ventrally; antennae serrate beginning with antennomere 5; elytra without dentate swelling at apical third, lateral margins dentate in apical half, apex truncate without preapical lateral teeth; proventrite moderately convex; male genitalia distinctly swollen basally, Fig. 12b.

Description, holotype male. Size, 5.8 mm x 1.9 mm. Color purplish-black above and below, elytra with iridescent blue along lateral margin and with red maculae, one semilunar shaped on elytral lobe and one transverse at apical third reaching neither suture nor lateral margin. Head moderately densely punctate with semicircularly arranged rugae on lower front that is moderately clothed by long semirecumbent white setae; clypeus broadly triangularly emarginate; antennae reaching to near anterior 1/3 of pronotum when laid alongside, antenna serrate with sensory fossae from 6. Pronotum slightly wider than long, widest at middle; anterior margin transverse; sides in dorsal view arcuate, narrowest anteriorly; lateral margin distinct, impunctate, arcuate; posterior margin converging weakly posteriorward toward scutellum; disk strongly convex without midline groove; surface densely punctate laterally, punctures smaller and less dense medially, with some hat-

shaped sculptures posteromedially, background shagreened, with moderate semirecumbent white setae laterally. Scutellum rounded, disk glabrous with two large punctures and finer sculpture intermixed. Elytra subequal in width to pronotum at base; sides viewed dorsally subparallel in basal  $\frac{5}{8}$  then arcuately converging to apex; lateral margins, viewed from side, obtusely rounded at base, strongly lobed below humeri, weakly dentate in apical half; without preapical teeth, sutural tooth small, tooth of sutural ridge blunt slightly elevated; apex roundly truncate, finely dentate; disk moderately convex, flattened toward suture; striae distinct, punctate; intervals flattened medially, convex laterally, surface with inconspicuous very short erect and semierect white setae. Ventral surface moderately densely punctate, those of abdominal ventrites finer, pubescence moderately long of recumbent white setae becoming semirecumbent and longer medially on thoracic ventrites; proventrite with anterior margin broadly arcuately emarginate, disk and process moderately convex; posterior margin of abdominal ventrite 2 with broad arcuate brown lobe extending over  $\frac{1}{6}$  of ventrite 3; ventrite 5 triangular, with blunt submarginal carina extending beyond lateral margin in basal  $\frac{1}{2}$ , apex sharply pointed and slightly turned upward, disk with some fine sulci intermixed with fine punctures laterally. Legs sparsely finely punctate with few recumbent and semirecumbent white setae; tarsi with well developed pulvilli on tarsomeres 1-4; tarsal claws swollen near base. Male genitalia, Fig. 12.

Female. Similar to male but posterior margin of abdominal ventrite 2 without lobe.

Type Specimens. Described from one male and two females. Holotype male (CMNC) labelled “GUAT(EMALA). Zacapa 3 km W. Teculután 300m 3.VI.1991 H&A Howden (p)/ (red) HOLOTYPE *Paratyndaris similis* Nelson & Bellamy (p)”. Two female paratypes as follows: 1♀, GUAT. El Progreso km 103–106 on Rd. to Cobán 700m 19.VI.1993 H. & A. Howden; 1♀, GUAT. Zacapa 16 km S. San Lorenzo 210m 16.VI.1993 H. & A. Howden. Paratypes deposited in CMNC and GHNC.

Variation. In color there is variation in the amount of iridescent blue on the elytra and in the size of the red maculae. In size one female is 7.0 mm x 2.5 mm; the other 7.2 mm x 2.5 mm.

Distribution (Fig. 16). The three known specimens are from Guatemala.

Biology. Nothing is known of the biology of this species.

Comparisons. *Paratyndaris similis* is closely similar to *P. pulchra* n.sp. but differs as follows: dentations along lateral margins of elytra stronger and begin midway to apex, only toward apex in *P. pulchra*; sutural tooth minute in *P. similis*, small but acute in *P. pulchra*; proventrite more convex and pubescence of ventral surface more sparse in *P. pulchra*; male genitalia distinctly swollen toward base in *P. similis* (Figs. 11b & 12b).

Etymology. This name was chosen because of the close similarity to *P. pulchra*.



**6. *Paratyndaris (Knulliella) chamaeleonis* (Skinner, 1903)**

(Figs. 16, 30)

*Tyndaris chamaeleonis* Skinner, 1903:237, Pl. 10, Fig. 1; Kerremans, 1907:566; Leng, 1920:178; Nelson, 1987:64; Westcott, *et al.* 1989:220; Bellamy & Nelson, 1990:297; Akiyama & Ohmomo, 2000:Pl. 10, Fig. 101.

*Paratyndaris chamaeleonis*: Fisher, 1919:92; Chamberlin, 1926:224; Obenberger, 1926:55; Knull, 1937:255; Blackwelder, 1939:42; Vogt, 1949:195.

*Ancylotela chamaeleonis*: Barr, 1972:109 (in key).

**Diagnosis.** Head, pronotum and below gray-black with slight bronze tint, elytra with yellow maculations each surrounded by iridescent blue, one pair near base toward suture, one at lateral margin just before basal third, one more discal at basal third and two pair near apical third, all or some of these variously joined; pubescence sparse and short; antennae serrate beginning with antennomere 5 (5 weak); pronotum strongly convex without mid-line groove, surface densely punctate and asperate; elytral lateral margins weakly dentate toward apex, without preapical teeth, apex roundly truncate; abdominal ventrite 2 in male with broadly rounded brown lobe extending over  $\frac{1}{4}$  of ventrite 3, lobe slightly less in female; tarsi 1-4 with well developed pulvilli.

**Type Specimens.** Described from two specimens. The lectotype female (USNM) is labelled as follows: "Esprza Rch Brownsville Tex (p) VII-3. (h)/ Type (p in red)/ Catal. No. (p) 215 (h)/ BROOKLYN MUSEUM COLL 1929 (p)/ (red) Cotype No. (p) 42657 (h) U.S.N.M. (p)/ Tyndaris chamaeleonis Skinner (h)/ (red) LECTOTYPE (p)/ Tyndaris chamaeleonis Skinner 1989 (h) C. L. BELLAMY (p)".

**Variation.** There is considerable variation in the degree of separation or confluence of the yellow elytra maculae. The males vary from 5.1–8.6 mm long ( $\bar{x}$  = 6.8 mm,  $n$  = 25) and 1.8–3.0 mm wide ( $\bar{x}$  = 2.4 mm,  $n$  = 25); females from 5.7–9.0 mm long ( $\bar{x}$  = 7.6 mm,  $n$  = 25) and 1.9–3.3 mm wide ( $\bar{x}$  = 2.6 mm,  $n$  = 25); 137 specimens were studied in total.

**Distribution** (Fig. 16). **UNITED STATES.** TEXAS: Bexar Co., Leon Valley (Nelson, 1987); Cameron Co., Brownsville (type locality); Comal Co., New Braunfels (previous 2, Skinner, 1903); Frio Co. (GHNC); Hidalgo Co.; Starr Co. (previous 2, Vogt, 1949); Uvalde Co., Uvalde (Knull, 1937). **MEXICO.** NUEVO LEON: Apodaca Campo Exp. (GHNC, new state record); TAMAULIPAS: 77 km NE Cd. Victoria (Westcott, *et al.* 1990).

**Biology.** This species has been reared from standing dead *Parkinsonia aculeata* L. (TCMC) and *Pithecellobium ebano* (Berl.) Muller [= *P. flexicaule* (Benth.) J. M. Coult.] (GHNC, RLWE). Adults have also been found on *Celtis pallida* Torr., *Diospyros texana* Scheele (previous two, Nelson, 1987), *Leucophyllum texanum* Benth. (Vogt, 1949), *Lippia alba* (Mill.) N. E. Br. (GHNC), *Lycium berlandieri* Dun. (Vogt, 1949), *Prosopis glandulosa* Torr. (Knull, 1937), and *Sorghum* sp. (GHNC). Adults have been collected from May 24 to an unspecified date in October.

Comparisons. The particular pattern of the yellow elytral maculae make this species easy to recognize. The much coarser and denser sculpture of the pronotum also distinguishes this species from others in the subgenus.

**subgenus *Paratyndaris* (s. str.) Fisher, 1919**

*Paratyndaris* Fisher, 1919:92.

*Tyndaris* (*Paratyndaris*): Cobos, 1980:40-41; Bellamy, 1985:411.

Type species: *Tyndaris olneyae* Skinner, by original designation.

Antennae serrate with sensory fossae from antennomere 6 (Fig. 8), rarely 5. Pronotum variable, with or without midline groove. Elytral lateral margin with preapical teeth. Abdominal ventrite 5 terminates variously.

**7. *Paratyndaris* (s. str.) *anomalis* Knull, 1937**

(Figs. 17, 31)

*Paratyndaris anomalis* Knull, 1937:252, Pl. 1, Fig. 2 (adult); Blackwelder, 1939:42; Barr, 1941:169.

*Ancylotela anomalis*: Helfer, 1970:91, Fig. (adult); Barr, 1972:109 (in key).

*Tyndaris anomalis*: Cobos, 1980:41.

Diagnosis. Moderately robust; black or with cupreous tint, elytra with irregular yellow maculae, one long lateral margin and one on disk that extends variably toward apex; clothed by semirecumbent white hair-like setae, more dense below; antennae serrate from 7<sup>th</sup> antennomere; pronotum strongly convex with or without smooth midline groove posteriorly, surface moderately asperate; elytra with lateral margin weakly dentate in apical half, with acute bilaminar preapical teeth, sutural teeth acute; apex tooth-like; abdominal ventrite 2 of male with broadly rounded tan colored lobe extending over 1/3 of 3, and 3 with small concolorous lobe, female with concolorous lobe of 2 extending over 1/4 of 3, tarsomeres 1–4 with pulvilli slender.

Type Specimens. Described from a series of both sexes. The holotype male (FMNH) is labelled as follows: “Las Vegas Nev. (p) VIII-1-36 (h)/ J. N. Knull Collr. (p)/ (red) HOLOTYPE (p) *Paratyndaris anomalis* Knull (h)/ J. N. Knull Collection (p) *Paratyndaris anomalis* Knull det. J. Knull (p)”.

Variation. In some the small posterior midline groove of the pronotum is absent. There is considerable variation in the pattern of the yellow maculae of the elytra from two rather complete vittae extending from base to apical third to three pairs of spots. The males vary from 5.0–6.6 mm long ( $\bar{x}$  = 5.9 mm, n = 21) and 1.2–2.4 mm wide ( $\bar{x}$  = 2.2 mm, n = 21);

females from 5.7–6.8 mm long ( $\bar{x}$  = 6.2 mm,  $n$  = 22) and 2.1–2.6 mm wide ( $\bar{x}$  = 2.4 mm,  $n$  = 22); 39 specimens were studied in total.

Distribution (Fig. 17). **UNITED STATES.** ARIZONA: Yuma Co., Yuma (FMNH); CALIFORNIA: Imperial Co., El Centro (Barr, 1941); Inyo Co., 7 mi. NE Shoshone (WFBM); Riverside Co., Painted Cyn. (EMEC, FMNH, RLWE, WFBC); San Bernardino Co., 15 mi. W Baker (FMNH, GHNC). NEVADA: Clark Co., Las Vegas (type locality).



**FIGURE 17**, known geographic distribution of: *Paratyndaris* (s. str.) *anomalis* Knull (+); *P.* (s. str.) *tucsoni* Knull (open circles - ○); *P.* (s. str.) *peninsularis* Westcott (open triangles - △); *P.* (s. str.) *variabilis* Westcott (open squares - □).

Biology. Larvae feed in dead limbs of *Prosopis glandulosa* var. *torreyana* (L. Benson) M.C. Jtn, CALIFORNIA: Inyo Co., 7 mi. NE Shoshone (WFBM); San Bernardino Co., 15 mi. W Baker (GHNC). Adults have been collected from June 21 to August 2.

Comparisons. In size and shape, there is similarity to *P. tucsoni*, but the distinctive yellow maculae of the elytra set this species apart from all others.

### 8. *Paratyndaris* (s. str.) *tucsoni* Knull, 1938

(Figs. 17, 32)

*Paratyndaris tucsoni* Knull, 1938:21; Blackwelder, 1939:42; Parker, 1947:33.

*Ancylotela tucsoni*: Nelson, 1965:37; Barr, 1972:109.

*Tyndaris tucsoni*: Cobos, 1980:41, Fig. 14 (antenna); Nelson, *et al.* 1981:148; Walters & Bellamy, 1990:114; Akiyama & Ohmomo, 2000:Pl. 10, Fig. 105 (adult).

Diagnosis. Robust; piceous with purplish tint, elytra with two pair of red maculae at basal 2/5, one elongate on lateral margin and round one near suture; clothed by recumbent white setae that are longer and more dense on pronotal margins, elytral base and beneath; antennae serrate from antennomere 7; pronotum strongly convex without midline depression, disk finely densely punctato-asperate becoming densely punctate laterally; elytra with strong rounded subhumeral lobe; lateral margin viewed from side dentate in apical half, with paired preapical acute teeth, apex tooth-like; abdominal ventrite 2 of male with broadly rounded median lobe extending over 2/5 of ventrite 3, in female over 1/4 of ventrite 3; tarsomeres with pulvilli relatively narrow on 1–4.

Type Specimens. Described from one male and one female. The holotype male (FMNH) is labelled as follows: “Tucson Ar. (p) VIII-13-36 (h)/ J.N.Knull Collr. (p)/ (red) HOLOTYPE (p) *Paratyndaris tucsoni* Knull (h)/ J. N. Knull Collection (p)/ *Paratyndaris tucsoni* Knull det. J. Knull (p)”.

Variation. The purplish cast is sometimes absent; and there is variation in the size of the red elytral maculae, occasionally the medial pair are absent. Males vary from from 4.6–6.4 mm long ( $\bar{x}$  = 5.6 mm,  $n$  = 25) and 1.8–2.6 mm wide ( $\bar{x}$  = 2.2 mm,  $n$  = 25); females from 5.3–7.3 mm long ( $\bar{x}$  = 6.2 mm,  $n$  = 25) and 2.0–2.9 mm wide ( $\bar{x}$  = 2.4 mm,  $n$  = 25); 235 specimens were studied in total.

Distribution (Fig. 17). **UNITED STATES**. ARIZONA: Gila Co., 4 mi. S Roosevelt Lake (WFBM); Maricopa Co., Cave Creek (Parker, 1947); Mohave Co., Oatman (Nelson, *et al.* 1981); Pima Co., Organ Pipe Nat. Mon. (ASUC); Pinal Co., 7 mi. W Maricopa (WFBM); Santa Cruz Co., Peña Blanca Lake (MKNC); Yuma Co., Hope (CASC), Yuma (FMNH); CALIFORNIA: Imperial Co., 13 mi. SW Palo Verde (ASUC); Riverside Co., Blythe (FMNH); NEW MEXICO: Hidalgo Co., 18 mi. N Rodeo (Walters & Bellamy, 1990). **MEXICO**. SONORA.

**Biology.** The larval hosts are unknown. Adults have been collected on *Acacia constricta* Benth. (Walters & Bellamy, 1990), *A. greggii* Gray (Nelson, *et al.* 1981), *Cercidium floridum* Benth. (Parker, 1947), *Mimosa biuncifera* Benth. (Walters & Bellamy, 1990), *Olneya tesota* Gray (Nelson, 1965), and *Prosopis glandulosa* Torr. (Parker, 1947). Adults have been collected from May 27 to August 27.

**Comparisons.** In size and shape, *P. tucsoni*, is similar to *P. anomalis* and in other ways is similar to *P. peninsularis* and *P. quadrinotata* and is compared under each of them.

### 9. *Paratyndaris* (s. str.) *acaciae* Knull, 1937

(Figs. 22, 33, 71)

*Paratyndaris acaciae* Knull, 1937:254, Fig. 3 (adult); Blackwelder, 1939:42; Cazier, 1951b:29.

*Ancylotela acaciae*: Barr, 1972:108 (in key).

*Tyndaris acaciae*: Cobos, 1980:41; Akiyama & Ohmomo, 2000:Pl. 10, Fig. 102 (adult).

**Diagnosis.** Moderately robust; piceous throughout, elytra with red maculae along lateral margin just before middle; clothed by recumbent white setae, more dense laterally and below; antennae distinctly serrate from antennomere 6; pronotum strongly convex without midline groove, with slight depression at base and sometimes with impunctate median line in posterior part, disk moderately transversely asperate; elytra with lateral margin dentate in apical half (not visible from above), with paired preapical acute teeth, apex tooth-like; abdominal ventrite 2 in male with broadly rounded concolorous lobe extending over ¼ of ventrite 3, less in female; tarsomeres with pulvilli small on 1-3, larger on 4.

**Type Specimens.** Described from a series of specimens of both sexes. The holotype male (FMNH) is labelled as follows: “Davis M., Tex. (p) V-29-35 (h)/ J. N. Knull Collr. (p)/ (red) HOLOTYPE (p) *Paratyndaris acaciae* Knull (h)/ J. N. Knull Collection (p)/ *Paratyndaris acaciae* Knull det. J. Knull (p)”.

**Variation.** Occasionally the smooth median line on the pronotum is slightly impressed and there is some variation in the size of the red maculae on the elytra. Males vary from from 6.3–8.5 mm long ( $\bar{x}$  = 7.0 mm, n = 25) and 2.3–3.2 mm wide ( $\bar{x}$  = 2.6 mm, n = 25); females from 6.2–9.3 mm long ( $\bar{x}$  = 7.8 mm, n = 25) and 2.3–3.4 mm wide ( $\bar{x}$  = 7.8 mm, n = 25).

**Distribution** (Fig. 22). **UNITED STATES.** NEW MEXICO: Chavez Co., 38 mi. N Artesia (WFBM); Dona Ana Co., Organ Mts. (OSUC); Eddy Co., 11 mi. S White City (WFBM); Grant Co., Silver City (Knull, 1937); TEXAS: Brewster Co., Chisos Mts. (Knull, 1937); Culberson Co. (OSUC); Jeff Davis Co., Ft. Davis (Knull, 1937); Presidio Co., Shafter (GHNC); Reeves Co., Toyavale (TAMU); Val Verde Co., Pecos R. (Knull, 1937). **MEXICO.** CHIHUAHUA: 20 mi. SW Camargo (Cazier, 1951b); DURANGO: 10 mi. W Quencame (WFBC).

**Biology.** Larval hosts are unknown. Adults have been collected on the following: *Acacia constricta* Benth. (Knull, 1937), *A. greggii* Gray (GHNC), *Celtis laevigata* Willd. (WFBM), *C. pallida* Torr., *Mimosa biuncifera* Benth. (previous 2, GHNC), *Prosopis glandulosa* Torr. (WFBC), *Quercus emoryi* Torr., *Viguiera stenoloba* Blake (previous 2, GHNC). Adults have been collected from May 23 to August 29.

**Comparisons.** This species appears as a larger version of *P. peninsularis* but in that species, that is found in southern Baja California, the pronotum is densely punctato-asperate, moderately transversely asperate in *P. acaciae*. *P. coursetiae*, to which it has been compared, is distinctly more slender, and has the pronotum much more coarsely asperate. It is compared with *P. dozieri* under that species.

**10. *Paratyndaris* (s. str.) *peninsularis* Westcott, 2000**  
(Figs. 17, 34)

*Paratyndaris peninsularis* Westcott, 2000:137, Figs. 1-3.

**Diagnosis.** Relatively robust; black on head, pronotum and beneath, elytra black commonly with purplish copper tint, with red-orange macula on lateral margin opposite metacoxal cavity; clothed by recumbent medium length white hair-like setae, more dense on lateral pronotum and below; antennae serrate from antennomere 6; pronotum strongly evenly convex, without midline groove, disk densely asperate-punctate becoming densely punctate laterally; elytra with well developed rounded subhumeral lobe, lateral margin coarsely dentate in apical half, with paired preapical acute teeth, apex tooth-like; disk without posterolateral interstitial teeth; abdominal ventrite 2 of male with broadly rounded concolorous lobe extending over ½ of ventrite 3; lobe of female extends over ¼ of ventrite 3; tarsomeres with pulvilli narrow on 1-3, broader on 4.

**Type Specimens.** Described from a series of specimens of both sexes. The holotype male (UNAM) is labelled as follows: "MEX: Baja Calif. Sur Playa El Coyote 26 km SSE Mulege 25-VII-1977 Dozier & Westcott (p)/ Beating mesquite, PROSOPIS GLANDULOSA var. TORREYANA (p)/ (red) HOLOTYPE *Paratyndaris peninsularis* R. L. WESTCOTT (h)".

**Variation.** According to the original description the pronotum usually has copper rather than green reflection often more noticeable laterally; rarely antennae may be serrate from 7 rather than 6; elytral macula may be narrowly bordered by faint bluish reflection at least in part. In size they vary from 5.1–7.3 mm long.

**Distribution** (Fig. 17). Known only from the Mexican state of Baja California Sur.

**Biology.** The larval hosts are unknown. Adults have been taken on the following: *Atamisquea emarginata* Miers., *Cercidium microphyllum* (Torr.) Rose & Johnston, *Mimosa purpurascens* Robinson, and *Prosopis glandulosa* var. *torreyana* (L. Benson) M.C. Jtn. (all Westcott, 2000).

Comparisons. This species is closely similar to *P. acaciae* under which it is compared. It is also similar to *P. quadrinotata* and *P. tucsoni*, but both of them have an extra pair of discal elytral maculae and *P. tucsoni* has antennae serrate from 7 instead of 6.

**11. *Paratyndaris* (s. str.) *dozieri* Nelson & Bellamy, sp. nov.**

(Figs. 22, 35)

Diagnosis. Robust; grayish-black above and below with iridescent rose on subhumeral elytral lobe; clothed by semirecumbent white hair-like setae, longer on head, margins of pronotum, elytra and ventrally; antennae serrate from antennomere 6; pronotum strongly convex, without midline groove but with depression near posterior margin, disk finely punctato-asperate, punctures coarser laterally; elytra with strong rounded subhumeral lobe, lateral margin weakly dentate behind middle and with paired subapical acute teeth, apex tooth-like; disk without posterolateral interstrial teeth; abdominal ventrite 2 in male with broadly rounded brownish lobe extending over 1/3 of ventrite 3, in female lobe only faintly indicated; tarsomeres 1–4 with pulvilli well developed.

Description, holotype male. Size, 8.3 x 3.3 mm. Color grayish-black above and below with slight cupreous tint on pronotum and with iridescent rose on subhumeral lobe of elytra. Head with surface moderately densely finely punctate, clothed by moderate length semirecumbent white setae that are more dense on lower front; clypeus deeply arcuately emarginate; antennae short, reaching anterior 1/4 of pronotum when laid alongside, serrate from antennomere 6. Pronotum slightly wider than long, widest just behind middle; anterior margin slightly arcuate, sides in dorsal view arcuate; lateral margins distinct, narrowly impunctate, glabrous and weakly sinuate; posterior margin directed slightly posteriorward toward midline and weakly notched before scutellum; disk strongly convex without midline groove but with depression near posterior margin; disk finely punctate, punctures more coarse laterally, with some fine asperites on middle of disk, clothed by relatively short semirecumbent white setae except on middle of disk. Scutellum elongate oval, glabrous, slightly depressed. Elytra slightly narrower than pronotum; sides viewed from above, subparallel to near middle, then gradually narrowing to apices; lateral margins viewed from side obtusely rounded at base, strongly lobed below humeri, weakly dentate behind middle; paired subapical acute teeth on lateral margin, sutural tooth small acute, tooth of sutural ridge moderately prominent and slightly elevated; bimargined toothlike apices extending beyond other teeth; disk moderately convex, elevated on sutural half at base and with longitudinal convexity from humeral area to middle, densely punctate with stria punctures weakly indicating striae, surface moderately clothed by short semirecumbent white setae. Ventral surface densely clothed laterally less dense medially by moderately long recumbent and semirecumbent white setae; thoracic ventrites densely punctate, abdominal punctures slightly smaller; proventrite anterior margin broadly arcuately emar-

ginate, process broad and rounded at apex; abdomen with posterior margins of ventrites glabrous and impunctate; ventrite 2 with glabrous central area and with broad impunctate dark brown lobe extending over 1/3 of ventrite 3; ventrite 5 broadly triangular, projecting beyond elytral apices, with blunt submarginal carina extending laterally beyond lateral margin in basal 1/2, apex bluntly pointed. Legs with femora and tibiae finely sparsely punctate, clothed as ventral surface; tarsi with evident pulvilli on tarsomeres 1-4; best developed on 4.

Female. Similar to male but abdominal ventrite 2 without or with only a faint indication of a lobe.

Type Specimens. Described from 45 males and 42 females. Holotype male (UNAM) labelled "MEX[ICO]., OAXACA 3mi. W. of Tehuantepec, VII-19-1965 (p)/ Collector G. H. Nelson (p)/, on dead limbs (p)/ on *Acacia pennatula* (S. & C.) Benth. (p)/ (red) HOLOTYPE *Paratyndaris dozieri* Nelson & Bellamy (p)". Paratypes as follows: MEXICO, OAXACA: 1♀, same data as holotype; 1♂, 1♀, same except 20-VII-1965; 3♂♂, 5.2 km E Tehuantepec, Hwy. 190, 15-VII-1992, G. H. Nelson, on mesquite; 2♂♂, 2♀♀, 8.2 km E Tehuantepec, Hwy. 190, 15-VII-1992, G. H. Nelson, on dead *Cassia* sp.; 5♂♂, 3♀♀, same except D. S. Verity, on dead branches *Acacia*, *Prosopis*; 5♂♂, 2♀♀, 12 km E Tehuantepec, Hwy. 190, 13-VII-1992, G. H. Nelson, on mesquite; 1♀, same data except T. C. MacRae, on *Haematoxylon* sp.; 2♂♂, same data except 12-VII-1992, T. C. MacRae, on *Haematoxylon* sp.; 1♀, 16 km E Tehuantepec, Hwy 190, 14-VII-1992, G. H. Nelson, on *Haematoxylon* sp.; 2♂, 4♀♀, same except 12/14-VII-1992, D. S. Verity; 2♂♂, same except 12-VII-1992, T. C. MacRae, on *Haematoxylon* sp.; 1♀, same except 13-VII-1992; 4♂♂, 3♀♀, Rancho Nochistlán, ca 16 km ENE Tehuantepec, Hwy. 190, N16°23'46" W95°06'23", 30m, 15-VII-2003, R. L. Westcott, C. L. Bellamy, beating dead twigs and branches; 1♂, 2♀♀, 55 km NW Tehuantepec, Hwy. 190, 16-VII-1992, G. H. Nelson, on *Acacia cochliacantha*; 1♀, 16 km NE Tehuantepec, 16°23'46", 95°05'23", 30m, 6-VII-2001, R. L. Westcott; 2♂♂, 6 km S Tehuantepec, Hwy 190, 11/15-VII-1992, D. S. Verity; 2♂♂, 3♀♀, 7.5 km E La Ventosa, N 16°36', W 94°56', 12-VII-1992, R. L. Westcott; 1♂, same except C. L. Bellamy; 1♂, 3mi. E Juchitan, 8-VII-1988, J.Cope; 2♂♂, S. Geronimo, 6-VIII-1923, E.G.Smith; 1♀, GUERRERO: 6.3 km N Rio Mezcala, Hwy. 95, 7-VII-1992, D. S. Verity; 4♂♂, 8♀♀, MICHOACAN: 13.3mi. S Capirio, 19-VI-1987, B. K. Dozier, beating *Prosopis*; 5♂♂, 2♀♀, same except 17-VI-1987; 1♂, 1♀, km 167.5, Hwy. 37, 32 km S Cuatro Caminos, 230 m, N18°47.643', W102°04.782', 24/25-VII-2003, R. L. Westcott; 1♀, same except 28-VIII-2002; 1♀, km 4, SE Zicuirán, Hwy. to C. de Morelos, 230m, N18°51.483', W101°56.288', 27-VIII-2002, C. L. Bellamy (CLB808), beating *Prosopis laevigatus*; 1♀, same except R. L. Westcott; 1♂, 17 km N Las Cañas, km 190, Hwy. 37, 285m, N18°41.000', W101°59.694', 28-VIII-2002, R. L. Westcott, beating *Prosopis laevigatus*. Paratypes deposited in CLBC, DSVC, FSCA, GHNC, RLWE, TCMC.

Variation. In color there is some variation in the amount of cupreous tint and in the intensity and extent of the iridescence on the elytral lobe. In size the males vary from 6.4–



8.8 mm long ( $\bar{x}$  = 7.9 mm,  $n$  = 25) and 2.4–3.5 mm wide ( $\bar{x}$  = 3.1 mm,  $n$  = 25); females from 6.4–9.6 mm long ( $\bar{x}$  = 8.4 mm,  $n$  = 25) and 2.8–3.6 mm wide ( $\bar{x}$  = 3.1 mm,  $n$  = 25).

Distribution (Fig. 22). This species is known from the following Mexican states: Guerrero, Michoacan, and Oaxaca.



**FIGURE 22**, known geographic distribution of: *Paratyndaris* (s. str.) *acaciae* Knull (+); *P.* (s. str.) *dozieri*, sp. nov. (open circles - ○); *P.* (s. str.) *grassmani* Parker (open triangles - △); *P.* (s. str.) *mexicana* Fisher (open squares - □).

**Biology.** The larval hosts are unknown. Adults have been collected on the following, almost always on dead limbs: *Acacia cochliacantha* Humb. & Bonpl., *A. pennatula* (S. & C.) Benth., *Cassia* sp., *Haematoxylum* sp., and *Prosopis laevigata* (Willd.) M. C. Johnst.

**Comparisons.** Of those immaculate species without pronotal groove, *P. dozieri* compares most closely to *P. uniformis* which is less robust, lacks iridescent rose on elytral sub-humeral lobe and has longitudinal rows of teeth on posterolateral elytral intervals. In body shape *P. dozieri* is similar to *P. acaciae* but lacks elytral maculae and has tarsomeres with pulvilli much wider.

**Etymology.** The name chosen is to honor Byrd K. Dozier, friend and colleague, who collected part of the type series.

**12. *Paratyndaris* (s. str.) *coursetiae* Fisher, 1919**

(Figs. 19, 36)

*Paratyndaris coursetiae* Fisher, 1919:93; Chamberlin, 1926:225 [*coursetia*, *lapsus calalmi*]; Obenberger, 1926:55; Leng & Mutchler, 1927:30; Knull, 1937:255, Pl. 1, Fig. 4; Blackwelder, 1939:42; Parker, 1947:32.

*Ancylotela coursetiae*: Cobos, 1955:Figs. 6 (antenna), 12 (wing), 16 (tegmen), 17 (penis); Barr, 1972:108 (in key).

*Tyndaris coursetiae*: Cobos, 1980:41; Walters & Bellamy, 1982:219; Akiyama & Ohmomo, 2000:Pl. 10, Fig. 103.

**Diagnosis.** Relatively slender, cylindrical; black above and below usually with cupreous tint, elytra with red macula at lateral margin near basal third, sometimes with additional small yellow spots on disk; antennae serrate from antennomere 7; pronotum strongly convex without midline groove but with smooth spot before scutellum, surface coarsely, densely punctate laterally, with asperites medially; elytra with lobe truncated, lateral margin dentate in apical 2/3 (not visible from above), with paired acute preapical teeth, apex tooth-like; abdominal ventrite 2 in the male with broadly rounded light brown lobe extending over 2/5 of ventrite 3; in female there is a small concolorous lobe on ventrite 2 or none; tarsomeres with pulvilli small on 1-3, larger on 4.

**Type Specimens.** Described from a single specimen. The holotype male (USNM) is labelled as follows: "Catalina Mts. Tucker Canyon, Ariz. (h); G.Hofer Colr (p);/ Reared (p) VII-17-18 (h)/ *Courseltia muctophylla* (h)/ Hopk US (p) 106503 (h)/ (red) Type No. (p) 22097 (h) U.S.N.M. (p)/ *Paratyndaris coursetiae* Fisher (h)".

**Variation.** In color pattern this is the most variable of the genus. In the northern part of its range in southeastern Arizona (type from Santa Catalina Mts.) 85% have the elytra with one red macula near basal third of lateral margin as in the type, and 15% with one or more yellow discal spots. In the southern part of its range in Sonora and Sinaloa, Mexico only 4% show the "typical" pattern while 96% have extra yellow spots. Males vary from 5.2 - 7.3 mm long ( $\bar{x}$  = 5.8 mm,  $n$  = 25) and 1.7-2.6 mm wide ( $\bar{x}$  = 1.9 mm,  $n$  = 25); females from 4.6 - 7.0 mm long ( $\bar{x}$  = 6.1 mm,  $n$  = 25) and 1.7 - 2.5 mm wide ( $\bar{x}$  = 2.1 mm,  $n$  = 25). 433 specimens were studied in total.

**Distribution** (Fig. 19). **UNITED STATES.** ARIZONA: Gila Co., Globe (ASUC); Maricopa Co., Cave Creek (Parker, 1947); Pima Co., Tucson (Knull, 1937); Pinal Co.; Santa Cruz Co., Madera Cyn. (GHNC). **MEXICO.** SINALOA: near Los Mochis & Guamuchi (DSVC); SONORA: near Hermosillo, Cd. Obregon, Navojoa (all DSVC); 46 mi W Sonoyta (RLWE).

**Biology.** Reared from *Coursetia microphylla* Gray (Fisher, 1919). Adults also on *Acacia greggii* Gray (WFBM) *Celtis pallida* Torr. (Knull, 1937), *Condalia* sp., *Mimosa biuncifera* Benth. (both, Walters & Bellamy, 1982), and *Olneya tesota* Gray (Parker, 1947). Adults have been collected from July 6 to September 10.



**FIGURE 19**, known geographic distribution of: *Paratyndaris* (s. str.) *quadrinotata* Knull (+); *P.* (s. str.) *coursetiae* Fisher (open circles - ○); *P.* (s. str.) *albofasciata* Knull (open triangles - △).

Comparisons. In body shape and typical color pattern, *P. coursetiae* is most similar to *P. lateralis* and *P. paralateralis* but it can be distinguished from them as follows: antennae serrate from antennomere 7; abdominal ventrite 2 with prominent tan-colored lobe in male, short concolorous lobe in female. In the other two species the antennae are serrate from antennomere 6 and abdominal ventrite 2 with weak concolorous lobe in male and absent in female.

**13. *Paratyndaris* (s. str.) *lateralis* (Barr, 1972), comb. nov.**

(Figs. 13, 20, 37)

*Ancylotela lateralis* Barr, 1972:94.*Tyndaris lateralis*: Cobos, 1980:41 (in key); Akiyama & Ohmomo, 2000:Pl. 10, Fig. 104 (adult).

**Diagnosis.** Relatively narrow; black, often with cupreous tint especially on elytra where the lateral part is commonly iridescent blue with one pair of red elytral maculae as crescent on subhumeral lobe; moderately clothed by semirecumbent white hair-like setae, longer on lateral pronotum and below; antennae reaching to anterior 1/3 of pronotum when laid alongside, serrate from antennomere 6; pronotum strongly convex with slight midline depression toward base; elytra viewed from side with moderate subhumeral lobe that is subtruncate anteriorly, lateral margin not serrate, paired acute subapical teeth, apex tooth-like; abdominal ventrite 2 in the male with slight median lobe, female without lobe; tarsomeres with pulvilli narrow on 1, increasing in width from 2-4. Male genitalia relatively short, Fig. 13.

**Type Specimens.** Described from a series of both sexes. The holotype male (CASC) is labelled as follows: "MEX., OAXACA 3mi. W. of Tehuantepec VII-9-1965 (p)/ collector G. H. Nelson (p)/ on Dead Limbs (p)/ (red) HOLOTYPE *Ancylotela lateralis* W.F.Barr (h)/ California Academy of Sciences Type No. (p) 14094 (h)".

**Variation.** The base color varies from black to dark purple, the lateral iridescent blue may be absent and the red macula varies from small spot not extending forward under humeri to projecting from subhumeral lobe obliquely to near middle of disk. Males vary from 4.2 - 6.5 mm long ( $\bar{x}$  = 5.4 mm, n = 25) and 1.4 - 2.4 mm wide ( $\bar{x}$  = 1.9 mm, n = 25); females from 4.4 - 7.0 mm long ( $\bar{x}$  = 6.0 mm, n = 25) and 1.5 - 2.5 mm wide ( $\bar{x}$  = 2.1 mm, n = 25); 457 specimens were studied in total.

**Distribution** (Fig. 20). **MEXICO.** GUERRERO: 6 mi. S Rio Mexcala; MICHOACAN: 9 mi. E Capiro (previous 2, Barr, 1972); MORELOS: 2 km S Sonacatepec; vic. L Vergel, N18°35'49", W99°01'37", 980m (RLWE); OAXACA: 3 mi. W Tehuantepec, type locality (Barr, 1972); PUEBLA: near Petlalcingo (CLBC, FSCA, RLWE); SINALOA: 13 mi. S Guamuchil; SONORA: near Alamos & Navojoa (previous 2, Barr, 1972).

**Biology.** Larval hosts are unknown. Adults have been collected on *Acacia cochliacantha* Humb. & Bonpl. (GHNC), *A. pennatula* (S.&C.) Benth. (Barr, 1972), *Cassia* sp., *Hae-matoxylon* sp. (previous 2, GHNC), and *Prosopis glandulosa* Torr. [= *P. chilensis* (Molina) Stuntz] (Barr, 1972). Adults have been collected from June 9 to October 30.

**Comparisons.** In general appearance, this species is similar to *P. coursetiae* under which it is compared, but is most closely allied to *P. paralateralis* a species that averages larger in size and is more uniformly black, but the more elongate slender male genitalia is the most reliable feature for distinguishing *P. paralateralis*.

**14. *Paratyndaris* (s. str.) *paralateralis* Nelson & Bellamy, sp. nov.**

(Figs. 14, 20, 38, 76)

ZOOTAXA

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**Diagnosis.** Relatively slender; black above and below, elytra iridescent blue along postero-lateral margin with semilunar red macula on subhumeral lobe; moderately clothed by semirecumbent white hair-like setae, longer on lateral pronotum and below; antennae serrate from antennomere 6; pronotum strongly convex without midline groove but with shallow depression in midline posteriorly, disk densely asperate becoming punctate laterally; elytra with weak subhumeral lobe that is subtruncate anteriorly, lateral margin not dentate, with paired subapical acute teeth, disk without interstrial teeth; abdominal ventrite 2 in male with slight median lobe along posterior margin, absent in female, ventrite 5 terminating acutely with notch at tip; tarsomeres 1-4 with moderately well developed pulvilli. Male genitalia elongate slender, Fig. 14.

**Description, holotype male.** Size, 7.3 mm x 2.4 mm. Color black above and below, elytra with iridescent blue laterally toward apex and red maculae as follows: semilunar spot from lobe around humeri and one small spot at middle slightly toward lateral margin. Head moderately densely punctate, punctures medium size, surface clothed by moderate length semirecumbent white setae; clypeus shallowly triangularly emarginate; antennae reaching anterior 1/3 of pronotum when laid alongside, serrate with sensory fossae from antennomere 6. Pronotum slightly wider than long, widest at middle; anterior margin transverse; sides in dorsal view arcuate; lateral margins distinct, narrowly impunctate and slightly sinuate; disk strongly convex without midline groove, shallow pit-like depression in midline posteriorly, surface rather densely punctate laterally and asperate medially, clothed by short semierect bristle-like white setae that are longer and semirecumbent laterally. Scutellum slightly elongate oval, disk glabrous with irregular indentations. Elytra subequal in width to pronotum at base; sides viewed dorsally subparallel to apical third then converging to apex; lateral margins viewed from side, obtusely rounded at base, weakly lobed subtruncate below humeri, not dentate; paired subapical teeth on lateral margin acute, sutural tooth slightly acute, tooth of sutural ridge prominent and slightly raised, bimarginal dentate apices extending beyond other teeth; disk with striae and strial punctures evident, interstrial punctures smaller, interstriae flattened toward suture, convex laterally, surface moderately clothed by short semirecumbent white setae. Ventral surface rather densely punctate, punctures small, and clothed by medium short, recumbent and semirecumbent white setae; abdominal ventrite 2 with barely a hint of concolorous lobe along posterior margin; ventrite 5 triangular, terminating in acute slightly upturned process, notched at apex; laterally with blunt sublateral carina extending beyond lateral margin basally. Legs sparsely finely punctate, background finely shagreened, sparsely clothed by medium short semirecumbent white setae; tarsomeres 1-4 with moderately well developed pulvilli; claws with slight lobe at base. Male genitalia, Fig. 14.

**Female.** Similar to male but abdominal ventrite numeral 2 without lobe along posterior margin.

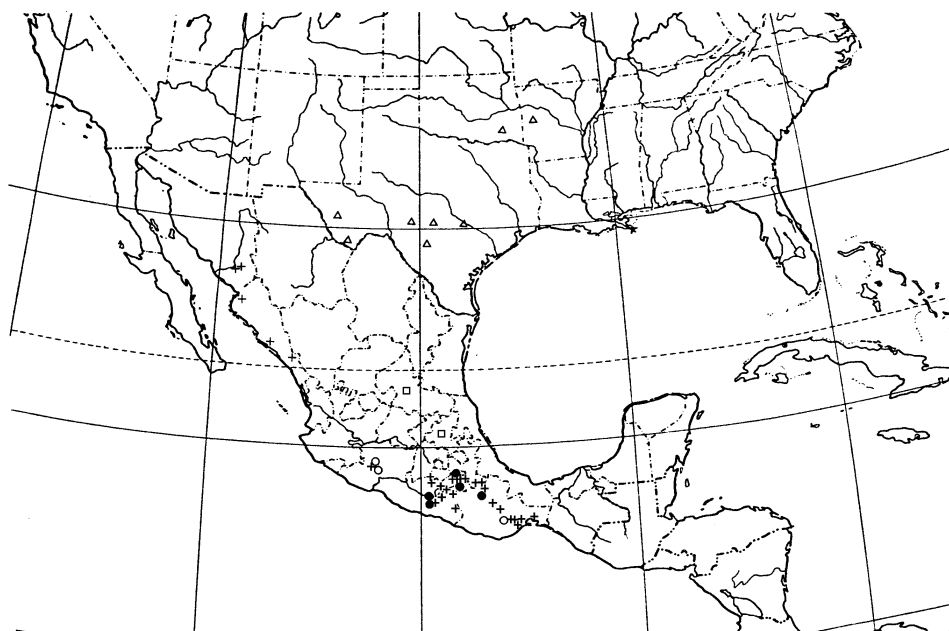
Type Specimens. Described from 14 males and 23 females, all from Mexico, Michoacan. Holotype male (UNAM) labelled "MEX., MICH., 9mi. S. Cuatro Caminos (p) 13(h)-VII-1972 G. H. Nelson (p)/ On Dead Limbs (p)/ on *Prosopis juliflora* (Sw.) D.C.(p)/ (red) HOLOTYPE *Paratyndaris paralateralis* Nelson & Bellamy (p)". Paratypes as follows: 2♂♂, 6♀♀, same data as holotype; 1♂, 18-20mi. S. Capirio, VII (21-22) 1984/ B. K. Dozier, Coll.; 1♂, 13.3mi. S, Capirio, VII.19.1987/ B. K. Dozier Collector/ Beating *Prosopis* sp.; 1♂, 1♀, Capirio (Hwy. 37) N18°52.415, W102°07.578, 220m, 24-VII-2003, R. L. Westcott, dead twigs and branches; 2♀♀, road to Tumbiscatio, 4.7 km SW Hwy 37, 295m, N18°48.496, W102°10.265, 24-VII-2003, R. L. Westcott, on dead twigs and branches, 1♂, 2.3 km S Cupuancillo (Hwy. 37 S of Chilar), N18°47.862, W102°06.408, 195m, 24-VII-2003, R. L. Westcott, on dead twigs and branches; 1♂, 2♀♀, km167.5, Hwy. 37, 32 km S Cuatro Caminos, N18°47.643, W102°04.782, 230m, 24-25-VII-2003, C. L. Bellamy CLB866, misc. beating; 3♀♀, same except R. L. Westcott, beating dead branches *Randia* sp.; 1♀, 5 km W Zicuirán, Hwy. to Cuatro Caminos, N18°53.548, W102°01.030, 250m, 26-27-VIII-2002, C. L. Bellamy CLB805, dead legume stems; 1♀, same except R. L. Westcott, on old dead twigs and branches; 2♂, km 4, SE Zicuirán, road to C. de Morelos, N18°51.483, W102°56.288, 230m, 23-VII-2003, C. L. Bellamy CLB860, misc. beating; 1♂, 1♀, 5 km NE Zicuirán, Carr. 120, 240m, N18°54.647, W101°56.719, 23-VII-2003, R. L. Westcott, old dead twigs and branches; 1♀, 9 km SE Zicuirán, road to C. de Morelos, 380m, N18°50.837, W101°54.835, 23-VII-2003, R. L. Westcott, old dead twigs and branches; 3♂♂, 3♀♀, 13 km WNW Zicuirán, km 160, Hwy. to Cuatro Caminos, 250m, N18°55.874, W102°03.200, 23-VII-2003, R. L. Westcott, old dead branches *Randia* sp.; 2♀♀, same except C. L. Bellamy CLB864. Paratypes deposited in CLBC, FSCA, GHNC, RLWE.

Two females in the TCMC were not included in the type series because no associated males were collected. If they are *P. paralateralis*, the range is much more extensive than the type series indicates. One was collected as follows: GUERRERO: Canon del Zopilote, 5.6 km S Milpillan, 6.VII.1992, T. C. MacRae; the other, OAXACA: Hwy. 190, 16 km E Tehuantepec, 12.VII.1992, T. C. MacRae.

Variation. In color several paratypes have the small discal elytral red spot similar to the holotype, but the rest of the type series lack discal spots, and there is some variation in the extent of the iridescent blue on the elytra. The males vary from 5.7 - 7.8 mm long ( $\bar{x}$  = 6.6 mm,  $n$  = 13) and 1.8-2.6 mm wide ( $\bar{x}$  = 2.2 mm,  $n$  = 13); females from 5.5-8.1 mm long ( $\bar{x}$  = 6.9 mm,  $n$  = 24) and 1.7 - 2.8 mm wide ( $\bar{x}$  = 2.3-mm,  $n$  = 24).

Distribution (Fig. 20). The type series is from the Mexican state of Michoacan. Females from Guerrero are possibly this species but were not included in the type series without associated males.

Biology. Nothing is known of the larval hosts of this species. Some of the type series were collected on the dead limbs of *Prosopis glandulosa* Torr., others on dead limbs of *Randia* sp. (Rubiaceae).



**FIGURE 20**, known geographic distribution of: *Paratyndaris* (s. str.) *lateralis* (Barr) (+); *P.* (s. str.) *paralateralis*, sp. nov. (open circles - ○); *P.* (s. str.) *prosopis* (Skinner) (open triangles - △); *P.* (s. str.) *verityi*, sp. nov. (open squares - □); *P.* (s. str.) *westcotti*, sp. nov. (solid circles - ●).

Comparisons. This species is most closely similar to *P. lateralis* and *P. coursetiae* and is compared under each.

Etymology. The species name was chosen for its close similarity to *P. lateralis*.

**15. *Paratyndaris* (s. str.) *variabilis* Westcott, 2000**  
(Figs. 17, 39)

*Paratyndaris variabilis* Westcott, 2000:138, Figs. 4–6.

Diagnosis. Moderately robust; shiny black throughout, each elytron with two small orange-red maculae with iridescent blue halos, one larger at margin opposite metacoxal cavity, the other just behind middle near lateral margin but separate; clothed above and below by moderately long recumbent white setae, shorter on disk of pronotum, more dense below; antennae serrate from antennomere 7; pronotum convex with vague longitudinal midline depression mainly posteriorly, disk densely punctato-asperate, punctures larger and more dense laterally; elytra with weakly rounded to subtruncate subhumeral lobe; lateral margin weakly serrate in apical ½ not or barely visible from above, with paired preapical acute teeth, apex tooth-like, disk without rows of teeth on posterolateral inter-

vals; abdominal ventrite 2 in male with broadly rounded brownish median lobe extending over 1/3 of ventrite 3; tarsi with well developed pulvilli on tarsomeres 1-4.

Female. Similar to male but lobe of abdominal ventrite 2 extends over 1/4 of ventrite 3.

Type Specimens. Described from a series of 16 males and 19 females. The holotype male (UNAM) is labelled as follows: "MEX: Baja Calif. Sur Sa. Giganta, 425m Est. Micro. Liguí 48 km S Loreto Jct. 7-IX-1977 (p)/ Beating dead twigs CERCIDIUM MICROPHYLLUM & OLNEYA TESOTA (p)/ R. L. Westcott Collector (p)/ (red) HOLOTYPE *Paratyndaris variabilis* R. L. Westcott (h)".

Variation. The color of the elytral maculae may be distinctly orange and small extra maculae may sometimes occur. Rarely antennomere six appears somewhat triangular. There is some variation in the pronotal midline depression to being more often absent. As indicated in the original description they vary from 4.9 - 7.0 mm long.

Distribution (Fig. 17). Known only from the Mexican state of Baja California Sur.

Biology. The larval hosts are unknown. Adults have been collected on *Cercidium microphyllum* (Torr.) Rose & Johnson, *Mimosa purpurascens* Robinson, *Olneya tesota* Gray, and *Prosopis glandulosa* var. *torreyana* (L. Benson) M. C. Jtn. (all, Westcott, 2000). Adults have been collected from September 3 to October 9.

Comparisons. Of species whose antennae are serrate from antennomere seven, *P. variabilis* is more similar to *P. coursetiae* but differs in having two lateral or sublateral elytral maculae; disk of pronotum moderately asperate; and body more robust. In *P. coursetiae* there is one lateral elytral macula; disk of pronotum coarsely densely asperate; and body more slender.

#### **16. *Paratyndaris* (s. str.) *quadrinotata* Knull, 1938**

(Figs. 19, 40)

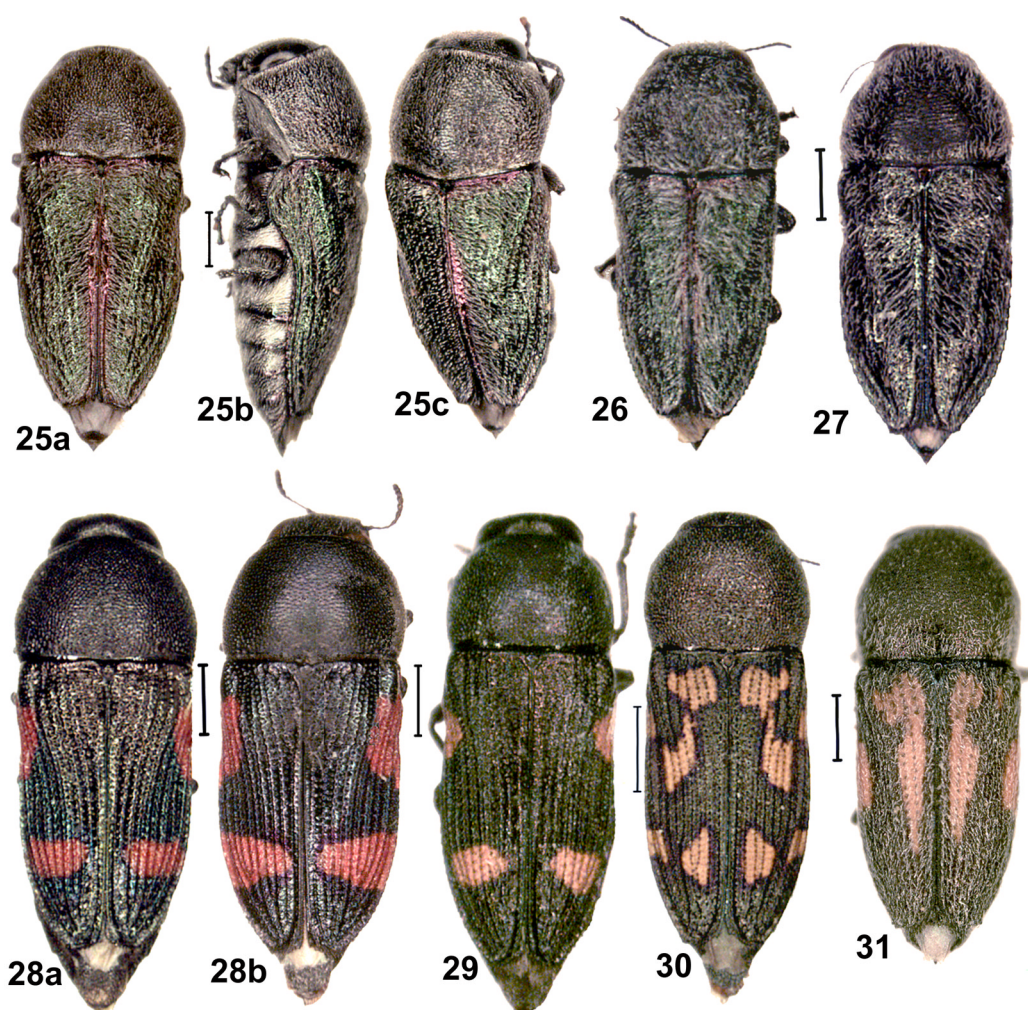
*Paratyndaris quadrinotata* Knull, 1938:22; Blackwelder, 1939:42.

*Ancylotela quadrinotata*: Barr, 1972:109 (in key).

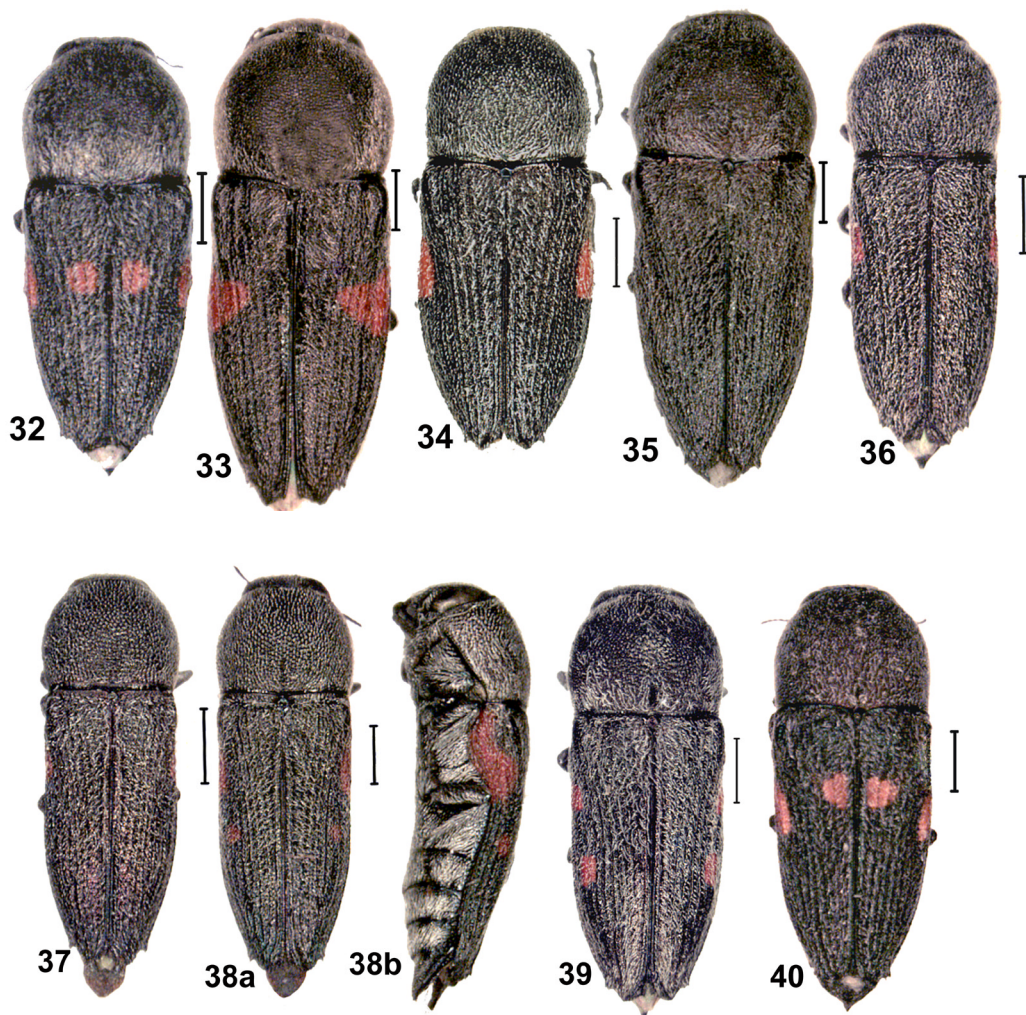
*Tyndaris quadrinotata*: Nelson, 1987:65.

Diagnosis. Relatively robust; piceous above and below, elytra with two pairs of orange-red maculae just before middle, one at lateral margin and the other slightly anterior near suture; clothed above and below with recumbent and semirecumbent white setae, antennae serrate from antennomere 6; pronotum strongly convex with only a hint of midline depression at base, disk densely punctato-asperate; elytra with strongly rounded subhumeral lobe, lateral margin weakly dentate toward apex, with paired preapical acute teeth, apex tooth-like; abdominal ventrite 2 in male with brown median broadly subtruncately rounded lobe extending over 2/5 of ventrite 3, in female concolorous rounded lobe extends over 1/3 of 3; tarsomeres 1-4 with pulvilli narrow.



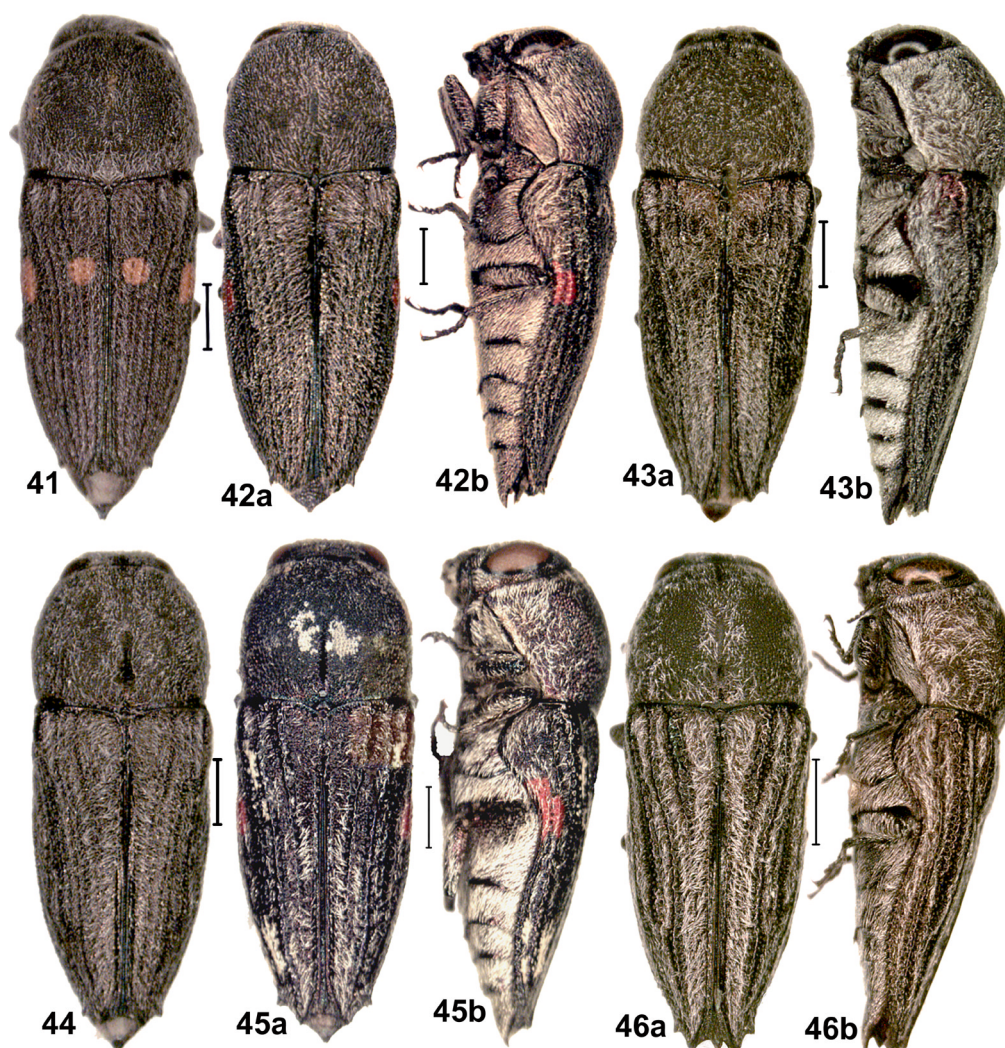


**FIGURES 25–31**, habitus of *Paratyndaris* (*Knulliella*) and *P.* (s. str.) spp.: Fig. 25, *P.* (*K.*) *suturalis* Fisher, ♀, (a) dorsal view, (b) lateral view, (c) oblique view; Fig. 26, *P.* (*K.*) *mojito* (Bílý), paratype ♂, dorsal view; Fig. 27, *P.* (*K.*) *antillarum* Fisher, ♀, dorsal view; Fig. 28, *P.* (*K.*) *pulchra*, sp. nov., (a) holotype ♂, dorsal view; (b) paratype ♀, dorsal view; Fig. 29, *P.* (*K.*) *similis*, sp. nov., holotype ♂, dorsal view; Fig. 30, *P.* (*K.*) *chamaeleonis* (Skinner), ♂, dorsal view; Fig. 31, *P.* (s. str.) *anomalis* Knull, ♂, dorsal view.

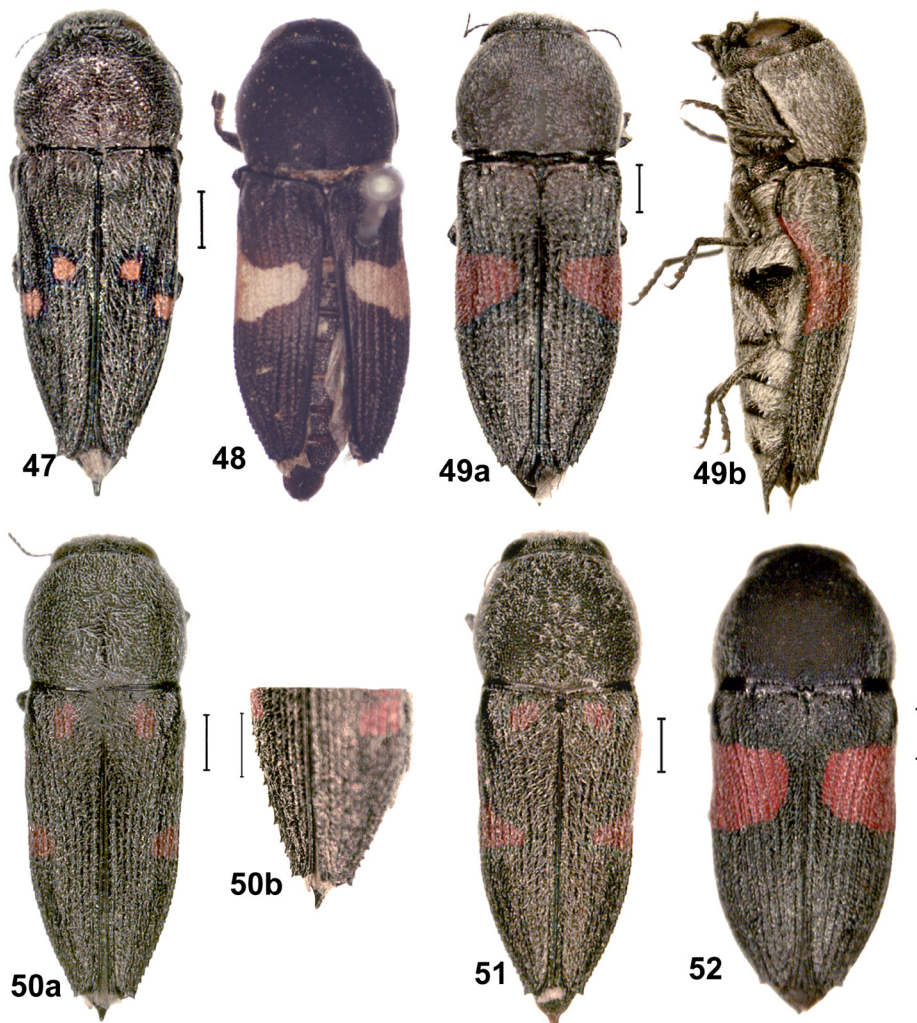


**FIGURES 32–40**, habitus of *Paratyndaris* (s. str.) spp.: Fig. 32, *P.* (s. str.) *tucsoni* Knull, ♂, dorsal view; Fig. 33, *P.* (s. str.) *acaciae* Knull, ♂, dorsal view; Fig. 34, *P.* (s. str.) *peninsularis* Westcott, holotype ♂, dorsal view; Fig. 35, *P.* (s. str.) *dozieri*, sp. nov., holotype ♂, dorsal view; Fig. 36, *P.* (s. str.) *coursetiae* Fisher, ♂, dorsal view; Fig. 37, *P.* (s. str.) *lateralis* (Barr), holotype ♂, dorsal view; Fig. 38, *P.* (s. str.) *paralateralis*, sp. nov., (a) holotype ♂, dorsal view, (b) paratype ♀ lateral view; Fig. 39, *P.* (s. str.) *variabilis* Westcott, holotype ♂, dorsal view; Fig. 40, *P.* (s. str.) *quadrinotata* Knull, ♂, dorsal view; scale bars = 1 mm.



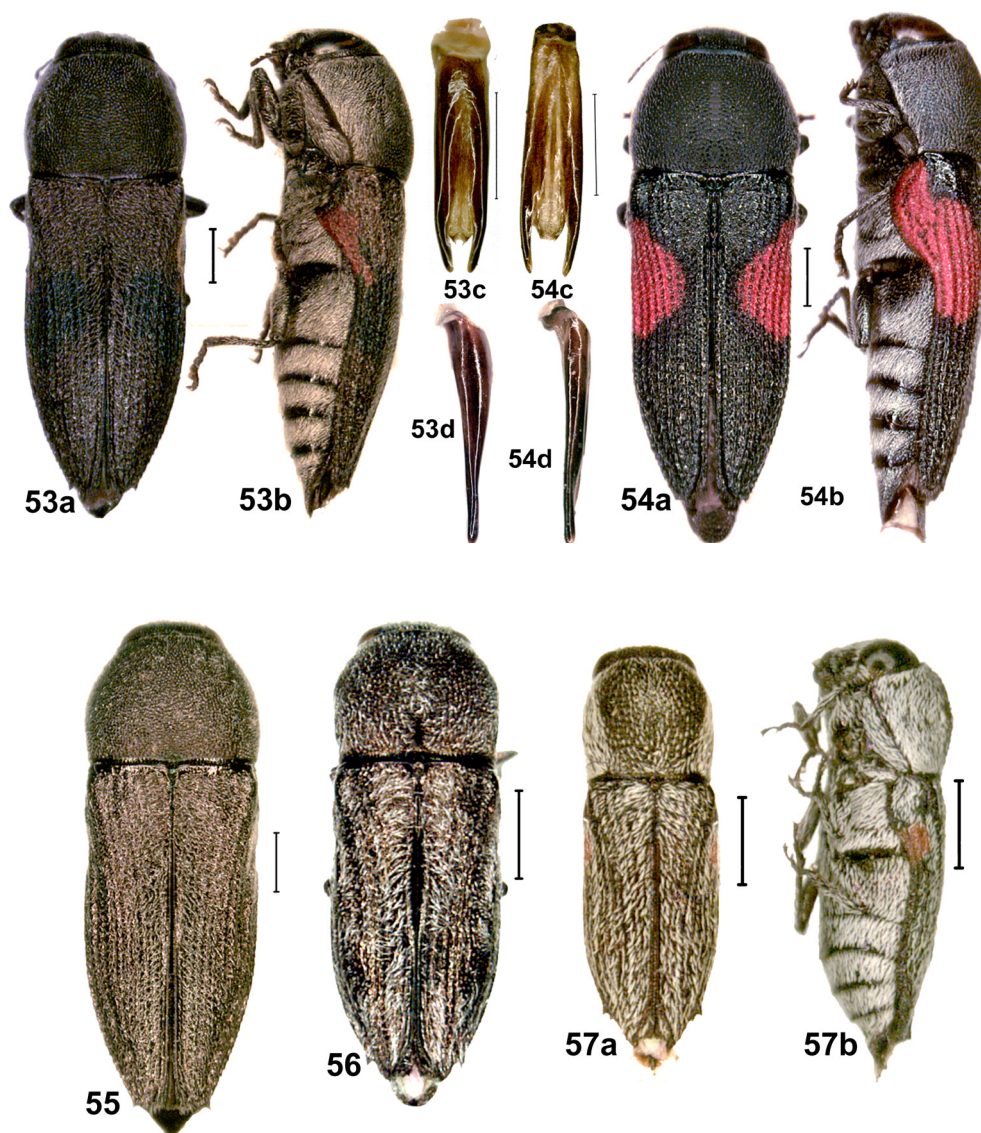


**FIGURES 41–46**, habitus of *Paratyndaris* (s. str.) spp.: Fig. 41, *P.* (s. str.) *olneyae* (Skinner), ♂, dorsal view; Fig. 42, *P.* (s. str.) *verityi* sp. nov., holotype ♂, (a) dorsal view, (b) lateral view; Fig. 43, *P.* (s. str.) *westcotti*, sp. nov., holotype ♂, (a) dorsal view, (b) lateral view; Fig. 44, *P.* (s. str.) *crandalli* Knull, holotype ♀, dorsal view; Fig. 45, *P.* (s. str.) *subcostata* (Barr), holotype ♂, (a) dorsal view, (b) lateral view; Fig. 46, *P.* (s. str.) *costata*, sp. nov., holotype ♂, (a) dorsal view, (b) lateral view; scale bars = 1 mm (the same for Figs. 42a, b; 43a, b; 45a, b).

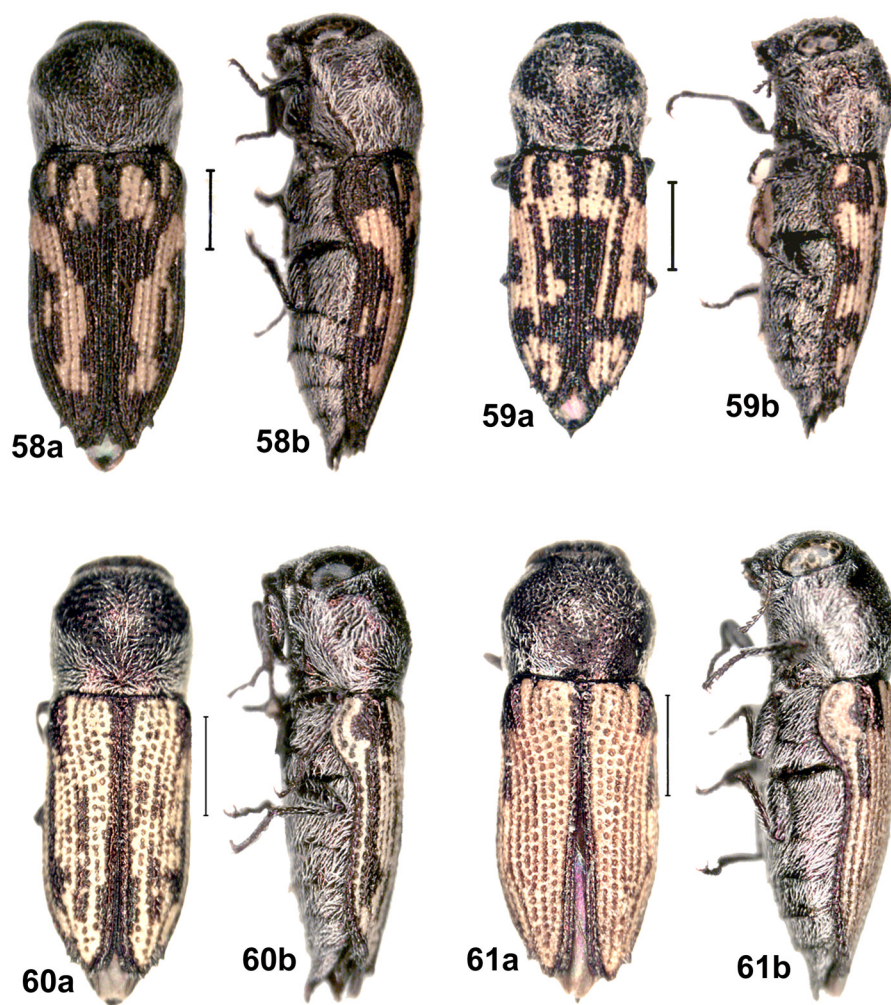


**FIGURES 47–52**, habitus of *Paratyndaris* (s. str.) spp.: Fig. 47, *P.* (s. str.) *prosopis* (Skinner), ♂, dorsal view; Fig. 48, *P.* (s. str.) *cincta* (Horn), holotype ♂, (a) dorsal view; Fig. 49, *P.* (s. str.) *cincta* (Horn), plesiotype ♂, (a) dorsal view, (b) lateral view; Fig. 50, *P.* (s. str.) *grassmani* Parker, holotype ♂, (a) dorsal view, (b) oblique view of elytra; Fig. 51, *P.* (s. str.) *mexicana* Fisher: (holotype ♂ of *P. sonora* Barr), dorsal view; Fig. 52, *P.* (s. str.) *robusta* (Dozier), paratype ♂, (a) dorsal view; scale bars = 1 mm (the same for Figs. 49a, b).



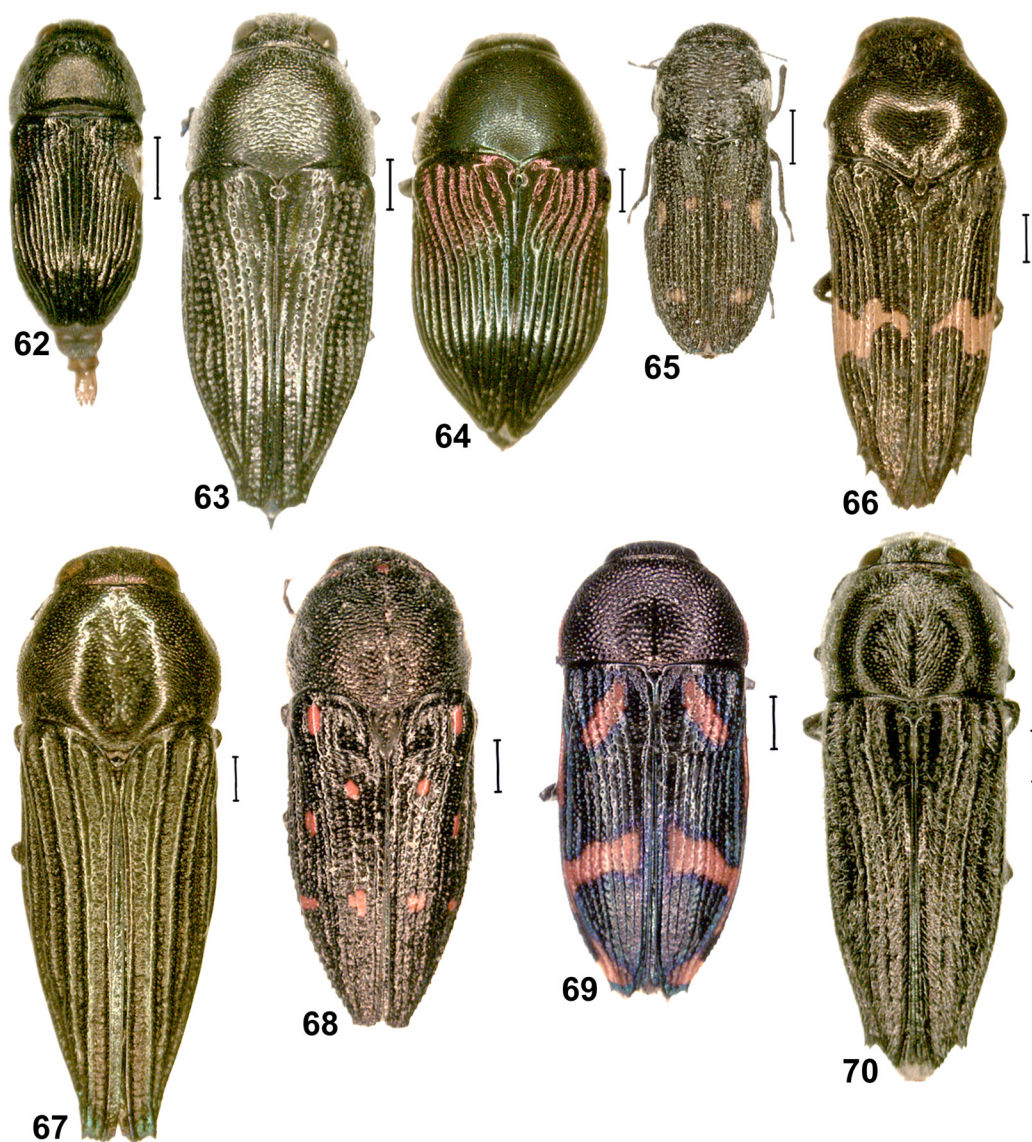


**FIGURES 53–57**, habitus of *Paratyndaris* (s. str.): Fig. 53, *P.* (s. str.) *nelsoni* (Barr), holotype ♀, (a) dorsal view, (b) lateral view; male genitalia, (c) dorsal and (d) lateral views; Fig. 54, *P.* (s. str.) *mimica*, sp. nov., holotype ♂, (a) dorsal view, (b) lateral view; male genitalia, (c) dorsal (d) and lateral views; Fig. 55, *P.* (s. str.) *uniformis*, sp. nov., holotype ♂, dorsal view; Fig. 56, *P.* (s. str.) *turbida*, sp. nov., holotype ♂, dorsal view; Fig. 57, *P.* (s. str.) *albofasciata* Knull, ♂, (a) dorsal view, (b) lateral view; scale bars = 1 mm (the same for Figs. 57a, b).

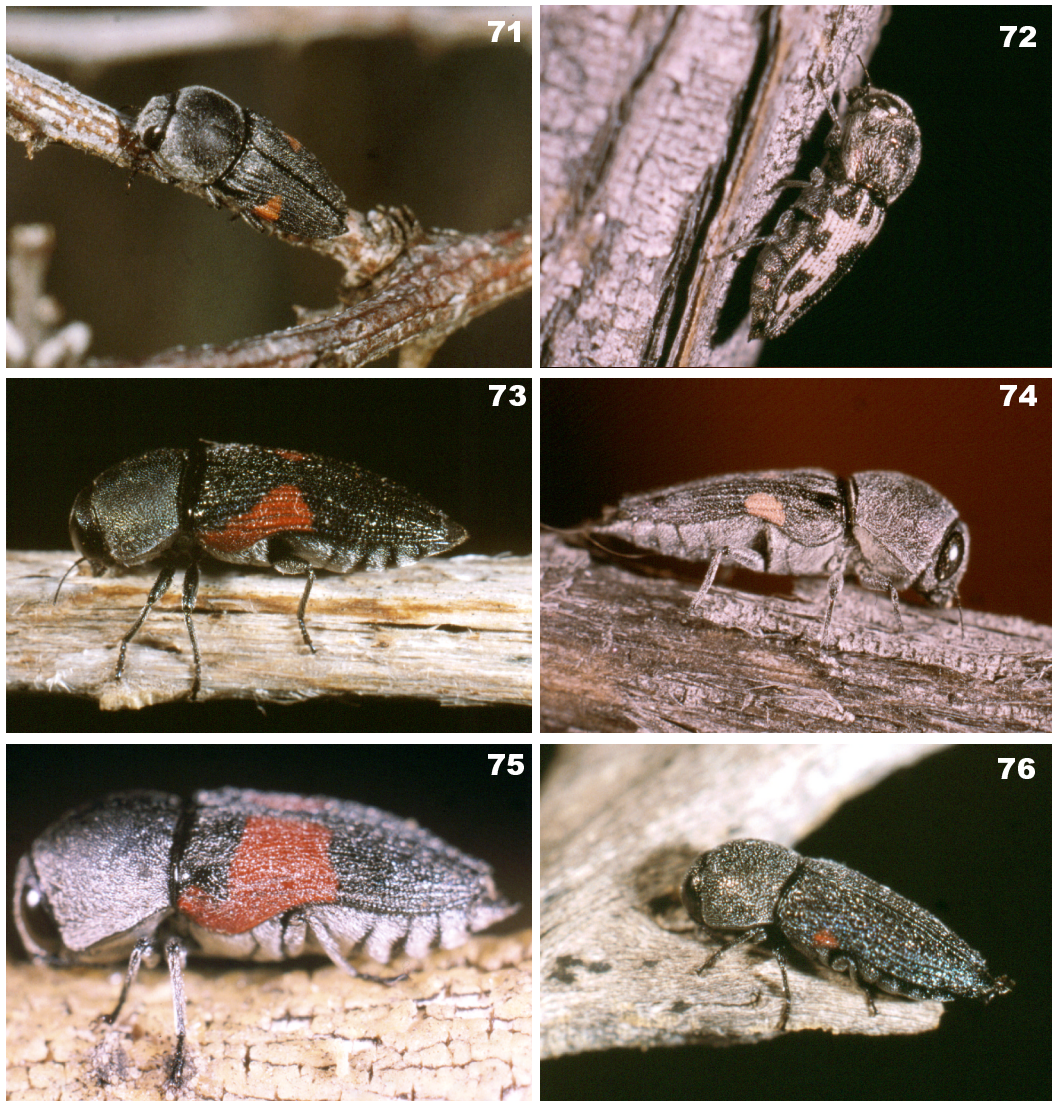


**FIGURE 58–61.** Fig. 58, *P. (W.) barberi* (Skinner), ♀, (a) dorsal view, (b) lateral view; Fig. 59, *P. (W.) knulli* (Barr), ♂, (a) dorsal view, (b) lateral view; Fig. 60, *P. (W.) equihuai* Westcott, holotype ♂, (a) dorsal view, (b) lateral view; Fig. 61, *P. (W.) trilobata* Westcott, holotype ♀ (a) dorsal and (b) lateral view;





**FIGURES 62–70**, dorsal habitus of selected *Paratyndaris* outgroup taxa: Fig. 62, *Bordonia venezolana* Cobos; Fig. 63, *Hayekina dispar* (Kerremans); Fig. 64, *Mimicoclytrina saundersii* (Waterhouse); Fig. 65, *Paraancylotela amplidorsa* (Kerremans); Fig. 66, *Ancylotela oculata* Waterhouse; Fig. 67, *Ocypetes crassicollis* (Laporte & Gory); Fig. 68, *Neocypetes guttulata* (Fairmaire & Germain); Fig. 69, *Tyndaris planata* (Laporte & Gory); Fig. 70, *Pelycothorax tylauchenoides* Bellamy & Westcott; scale bars = 1 mm.



**FIGURES 71–76**, *in situ* habitus of selected *Paratyndaris* spp.: Fig. 71, *P.* (s. str.) *acaciae* Knull, on dead *Acacia* sp., Davis Mountains, Texas; Fig. 72, *P.* (*Waltersia*) *knulli* (Barr), on dead *Olneya tesota*, Frink Springs, Imperial Co., California; Fig. 73, *P.* (s. str.) *mimica* sp. nov., on dead *Randia* sp., Michoacan, Mexico; Fig. 74, *P.* (s. str.) *olneyae* Skinner, on dead *Olneya tesota*, Frink Springs, Imperial Co., California; Fig. 75, *P.* (s. str.) *robusta* (Dozier), on dead branch, Michoacan, Mexico; Fig. 76, *P.* (s. str.) *paralateralis* sp. nov., on dead *Randia* sp., Michoacan, Mexico. (Photographs by C. L. Bellamy)



Type Specimens. Described from a series of both sexes. The holotype male (FMNH) is labelled as follows: "Tucson, Ar. (p) VIII-15-36 (h)/ J. N. Knull Collr. (p)/ (red) Holotype *Paratyndaris quadrinotata* Knull (h)/ J. N. Knull Collection (p)/ *Paratyndaris quadrinotata* Knull det. J. Knull (p)".

Variation. There is some variation in the size of the elytral maculae and in some the maculae have slight iridescent blue halo. The males vary from 5.5–8.7 mm long ( $\bar{x}$  = 7.0 mm, n = 22) and 2.0–3.1 mm wide ( $\bar{x}$  = 2.6 mm, n = 22); females from 5.8–9.8 mm long ( $\bar{x}$  = 7.4 mm, n = 25) and 2.3–3.5 mm wide ( $\bar{x}$  = 2.7 mm, n = 25); 36 specimens were studied in total.

Distribution (Fig. 19). **UNITED STATES**. ARIZONA: Maricopa Co., Wickenburg (FMNH); Pima Co., Tucson (type locality, Knull (1938b); Santa Cruz Co., Madera Cyn. (GCWC); Yavapai Co., Congress Jct. (FMNH). **MEXICO**. SONORA: 18 mi S Hermosillo (Nelson, 1987), E. of Navjoa (EBCC), S of Peon (FSCA).

Biology. The larval hosts are unknown. Adults have been collected on *Acacia constricta* Benth. (WFBM), *A. greggii* Gray (GHNC, WFBM), *A. willardiana* Rose, *Olneya tesota* Gray, *Prosopis glandulosa* Torr., and *Quercus oblongifolia* Torr. (last 3, GHNC). Adults have been collected from June 19 to September 30.

Comparisons. *Paratyndaris quadrinotata* is most easily confused with *P. olneyae* and *P. peninsularis* and is compared under each. It is also similar to *P. tucsoni* but it differs in being slightly larger and antennae serrate from antennomere 6, in *P. tucsoni* it is serrate from 7.

### 17. *Paratyndaris* (s. str.) *olneyae* (Skinner, 1903)

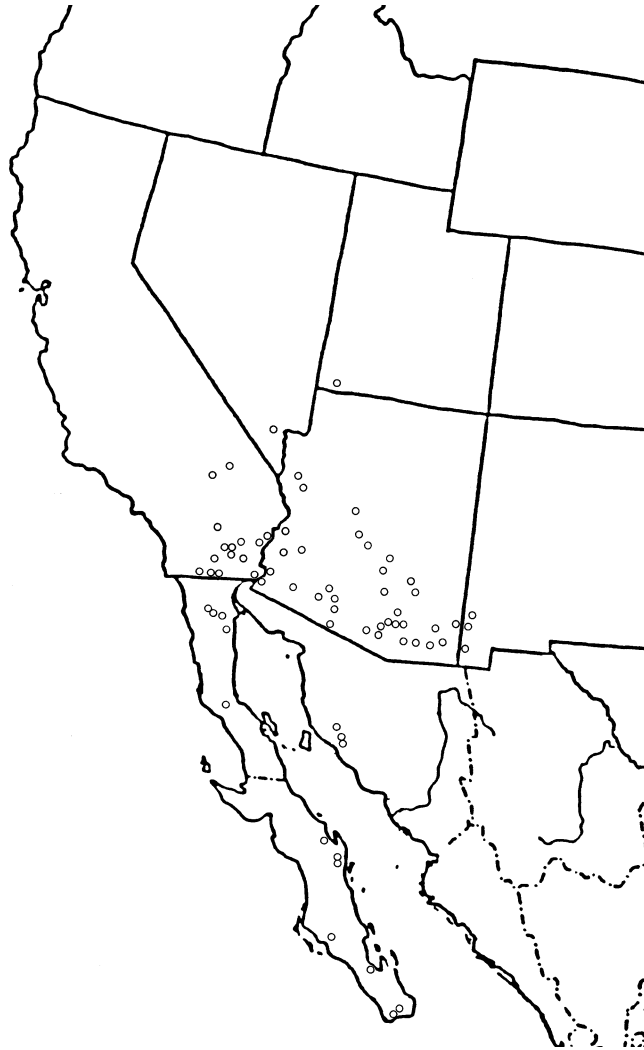
(Figs. 2, 5, 8, 15, 18, 44, 74)

*Tyndaris olneyae* Skinner, 1903:236, Pl. 10, Fig. 4; Kerremans, 1907:567; Burke, 1917:Pl. 7, Fig. 4 (larva); 1918:211; Leng, 1920:178; Cobos, 1980:41; Nelson, 1981:Fig. 13; Nelson, *et al.* 1981:148; Bellamy & Nelson, 1990:297; Akiyama & Ohmomo, 2000:Pl. 10, Fig. 100 (adult). *Paratyndaris olneyae*: Fisher, 1919:92; Chamberlin, 1926:225; Obenberger, 1926:55; Knull, 1937:255; Blackwelder, 1939:42; Barr, 1941:169; VanDyke, 1945:109. *Ancylotela olneyae*: Nelson, 1962:58; Barr, 1972:108.

*Diagnosis*. Moderately robust; piceous throughout, elytra commonly with purplish hue, with four orange maculae arranged transversely at anterior 2/5, one on each lateral margin and another on each disk near suture, maculae commonly with iridescent blue halo, clothed above by recumbent and semirecumbent white setae, more dense on lateral pronotum and especially dense ventrally; antennae serrate from antennomere 6 (Fig. 8); pronotum convex with distinct midline sulcus that is shiny and stronger posteriorly, disk asperate becoming densely punctate laterally; elytra with strong rounded subhumeral lobe, lateral margin dentate in apical half, teeth stronger toward apex, with strong paired preapical teeth, bilaminar tooth-like apex (Fig. 2); abdominal ventrite 2 in male with broadly

rounded median lobe extending over 2/5 of ventrite 3, in female concolorous lobe extends over 1/3 of ventrite 3; tarsomeres with pulvilli narrow on 1-3, widened on 4 (Fig. 5).

Type Specimens. *Tyndaris olneyae* Skinner was described from a series of specimens. The lectotype male (USNM) is labelled as follows: "Hot Sprgs Ar (p) 28.6 (h)/ Barber & Schwarz Coll (p)/ (red) Co (h) Type No. (p) 6956 (h) U.S.N.M. (p)/ (red) LECTOTYPE (p) Tyndaris olneyae Skinner 1989 (h) C. L. BELLAMY (p)".



**FIGURE 18**, known geographic distribution of: *Paratyndaris* (s. str.) *olneyae* Skinner (open circles - o).

Variation. There is variation in the size of the elytral maculae that vary from small spots to occasional specimens that have two maculae on each elytron larger and joining each other, and the color of them varies from almost yellow to decidedly reddish. The

males vary from 6.2–9.5 mm long ( $\bar{x}$  = 7.7 mm,  $n$  = 25) and 2.2–3.5 mm wide ( $\bar{x}$  = 2.8 mm,  $n$  = 25); females from 6.0–11.0 mm long ( $\bar{x}$  = 8.6 mm,  $n$  = 25) and 2.0–3.9 mm wide ( $\bar{x}$  = 3.1 mm,  $n$  = 25); 667 specimens were studied in total.

Distribution (Fig. 18). **UNITED STATES.** ARIZONA: Cochise Co., Chiricahua Mts. (Knull, 1937); Gila Co., Globe (GHNC); Greenlee Co., Duncan (EMNH); Maricopa Co., Gila Mts. (Knull, 1937); Mohave Co., Oatman (GHNC); Pima Co., Tucson Mts.; Santa Cruz Co., Madera Cyn.; Yavapai Co., Congress Jct.; Yuma Co., N of Yuma (previous 5, GHNC); CALIFORNIA: Imperial Co., Mt. Springs (FMNH); Riverside Co., Thermal, Vidal (Barr, 1941); San Bernardino Co., 15 mi. W Baker (GHNC); San Diego Co., Jacumba (Barr, 1941); NEVADA: Clark Co., Las Vegas (Knull, 1937); NEW MEXICO: Hidalgo Co., 18 mi. N Rodeo (GHNC); UTAH: Washington Co., St. George (Nelson, *et al.* 1981). **MEXICO.** BAJA CALIFORNIA (norte): 80 mi. S Mexicali (Nelson, 1962); BAJA CALIFORNIA SUR: 15 mi. S San Domingo (VanDyke, 1945); SONORA: 18 mi. S Hermosillo (GHNC).

Biology. Larvae have been reported from the following desert shrubs: *Acacia greggii* Gray, *Cercidium floridum* Benth. [= *C. torreyanum* (Wats.) Sarg.] (both, Burke, 1918), *Olneya tesota* Gray (Nelson, 1962), and *Prosopis glandulosa* Torr. [= *P. juliflora* (Sw.) D.C.] (Burke, 1918). Adults have also been collected on the following: *Acacia constricta* Benth., *Atriplex* sp., *Celtis pallida* Torr. (previous 3, GHNC), *Cercidium microphyllum* (Torr.), Rose & Johnston (FSCA), *Condalia* sp. (GCWC), *Mimosa biuncifera* Benth. (GHNC), *Pluchea sericea* (Nutt.) Cov. (Barr, 1941), and *Prosopis pubescens* Benth. (GHNC). Adults have been collected from May 25 to December 9.

Comparisons. In size, color and pattern of elytral maculae *P. olneyae* is most similar to *P. quadrinotata* but can be distinguished by 1) pronotum with distinct midline groove, 2) elytral intervals prominent and convex, and 3) dentations along lateral margin of elytra strong; in *P. quadrinotata* 1) pronotum without midline groove, 2) elytral intervals weakly convex, and 3) dentations along lateral elytral margin weak.

### 18. *Paratyndaris* (s. str.) *verityi* Nelson & Bellamy, sp. nov.

(Figs. 20, 42)

Diagnosis. Robust; black, each elytron with small red spot on lateral margin at basal 2/5; clothed by recumbent and semirecumbent white setae, shorter on pronotal disk, dense below and obscuring surface; antennae serrate from antennomere 6; pronotum strongly convex with shallow shagreened midline groove extending forward past middle, disk densely finely asperate medially densely punctate laterally; elytra with strong rounded subhumeral lobe, lateral margin serrate in apical half, with paired subapical acute teeth, apex tooth-like, disk without interstitial teeth; abdominal ventrite 2 in male with broadly rounded concolorous median lobe extending over 1/2 of ventrite 3, in female extends over 1/5 of ventrite 3; tarsomeres with pulvilli moderate on 1-3, wider on 4.

Description, holotype male. Size, 8.3 mm x 3.0 mm. Color black, a small red spot on lateral margin of each elytron 2/5 toward apex. Head with front finely densely punctate and densely clothed by long semierect white setae; clypeus moderately deeply arcuately emarginate; antennae reaching anterior 1/3 of pronotum when laid alongside, serrate from antennomere 6. Pronotum width 1.5 x length, widest just behind middle, narrowest at anterior margin; anterior margin arcuate in dorsal view as are sides; lateral margins distinct, narrowly glabrous, impunctate, almost straight with curve at posterior end; posterior margin directed weakly posteriorward toward midline with small notch before scutellum; disk strongly convex with shallow shagreened midline groove extending forward slightly more than midway with small pit before scutellum; rest of pronotum densely asperate medially, punctate laterally and clothed by fairly short, semirecumbent white setae. Scutellum elongate oval, disk glabrous, shagreened with one large puncture. Elytra as wide as pronotum at base; sides, viewed dorsally, sinuately subparallel to middle, then weakly arcuately converging to apices; lateral margins viewed from side obtusely rounded at base, strongly lobed below humeri, dentate from level of metacoxae, teeth becoming larger toward apex; paired subapical acute teeth on lateral margin, sutural tooth distinct, acute, tooth of sutural ridge prominent, rounded and elevated, finely serrate bimargined apices projecting beyond other teeth; disk convex, somewhat flattened medially; striae punctures distinct, larger than intervals that are flattened medially, becoming somewhat convex laterally, surface moderately clothed by medium long semirecumbent white setae that partially obscure surface. Ventral surface finely, densely punctate, finer on abdominal areas, densely clothed by moderately long, recumbent and semirecumbent white setae obscuring much of surface; proventrite with anterior margin broadly arcuately emarginate; disk moderately convex; abdominal ventrite 2 with broadly rounded concolorous lobe that extends over nearly 1/2 of ventrite 3; ventrite 5 broadly triangular and projecting well beyond elytral apices, with blunt submarginal carina extending laterally beyond lateral margin in basal 1/2, apex acute and narrowly truncate and slightly upturned. Legs sparsely, finely punctate and moderately densely clothed by recumbent and semirecumbent white setae; tarsi with pulvilli moderately developed on tarsomeres 1-3, stronger on 4.

Female. Similar to male but concolorous lobe on posterior margin of abdominal ventrite 2 extending over only 1/5 of ventrite 3.

Type Specimens. Described from eleven males and eight females. Holotype male (UNAM) labelled "MEX., Hidalgo 15mi. NW. Ixmiquilpan VIII-1-73(h)/ D. S. Verity collector (p)/ (red) HOLOTYPE *Paratyndaris verityi* Nelson & Bellamy (p)". Paratypes as follows: 4♂♂, 2♀♀, same data as holotype; 1♀ same data except 16mi. NW, IX-2-65, Eric Fisher Coll.; 1♂, same data except 9mi. NW, July 6, 1964, E. Fisher, D. Verity; 2♂♂, MEXICO, Hidalgo, 5.3mi. N Tasquillo, 20.35.48, 99.20.14, 1830m, 20.vii.1999, mesquite, R. L. Westcott; 1♀, same data except C. L. Bellamy; 1♂, same data except VI-19-2004, beating *Mimosa* sp., R. L. Westcott; 2♀♀, MEXICO, Hidalgo, 3.7 mi N Tasquillo, km. 97, 20°35.386, 99°20.425, VI-15-2004, beating dead twigs *Celtis* sp., R. L. Westcott; 1♀,

Mex: San Luis Potosi, 29 mi. S.W. Tula, VI.16.1983, B. K. Dozier Collector; 2♂♂, MEX., S.L.P., 41mi. N. of San Luis Potosi, VI-26-1965, Collector, G. H. Nelson, on *Prosopis glandulosa* Torr. [= *P. chilensis* (Molina) Stuntz]; 1♀, same data except VI-21-1972. Paratypes deposited in CLBC, DSVC, GHNC, RLWE.

Variation. In color there is little variation in the size of the red maculation on the elytra. In size the males vary from 8.4–9.5 mm long ( $\bar{x}$  = 8.9 mm, n = 11) and from 2.9–3.5 mm wide ( $\bar{x}$  = 3.2 mm, n = 11); females from 6.9–11.0 mm long ( $\bar{x}$  = 9.2 mm, n = 8) and 2.5–3.8 mm wide ( $\bar{x}$  = 3.3 mm, n = 8).

Distribution (Fig. 20). This species is known from the following Mexican states: Hidalgo and San Luis Potosi.

Biology. Larval hosts are unknown. Adults have been taken on *Prosopis glandulosa* Torr., *Celtis* sp. and *Mimosa* sp.

Comparisons. This species is compared to *P. crandalli* and *P. westcotti* under the former. *Paratyndaris verityi* keys to near *P. cincta* but lacks interstrial elytral teeth characteristic of *P. cincta*.

Etymology. Named in honor of our friend and colleague, David S. Verity, who collected much of the type series.

#### 19. *Paratyndaris* (s. str.) *westcotti* Nelson & Bellamy, sp. nov.

(Figs. 20, 43)

Diagnosis. Robust; black, immaculate but with iridescent rose on subhumeral elytral lobe; clothed by recumbent and semirecumbent white setae shorter on pronotal disk, ventrally dense especially laterally; antennae serrate from antennomere 6; pronotum convex without midline groove but with shagreened impunctate midline area posteriorly, surface finely punctato-asperate more medially becoming densely punctate laterally; elytra with strong rounded subhumeral lobe, lateral margin serrate in apical 1/2, paired subapical acute teeth, apex tooth-like, disk without interstrial teeth; abdominal ventrite 2 in male with broadly rounded concolorous median lobe extending over 1/3 of ventrite 3, in female there is but a hint of lobe; tarsomeres 1-4 with well developed pulvilli.

Description, holotype male. Size, 10.1 mm x 3.8 mm. Color uniformly black without maculae but with iridescent rose on subhumeral lobe of elytra. Head with front smooth, finely punctate with smooth median line and clothed by moderate length semirecumbent white setae more dense near eyes and on lower face; clypeus broadly triangularly emarginate; antennae short, reaching anterior 1/4 of pronotum when laid alongside, serrate with sensory fossae from antennomere 6. Pronotum width 1.2 x length, widest near middle, anterior margin slightly arcuate; sides arcuate in dorsal view; lateral margins distinct, narrow posteriorly, broader anteriorly, glabrous, impunctate and weakly sinuate; posterior margin directed somewhat posteriorward toward midline and weakly notched before scutellum; disk strongly convex, without midline groove but with midline impunctate

shagreened area extending from posterior depression to near anterior margin; surface moderately finely densely punctate especially toward margins, with fine asperites arranged concentrically about center, clothed by relatively short semirecumbent white setae more dense toward sides. Scutellum semi-diamond shape with anterior part elongate acute, disk convex, glabrous, impunctate. Elytra nearly as wide as pronotum; sides, viewed from above, weakly narrowed from humeri  $\frac{3}{5}$  to apex then more strongly so to apices; lateral margins viewed from side obtusely rounded at base, strongly lobed below humeri, dentate behind middle to apex; paired subapical teeth on lateral margin acute, sutural tooth distinct acute, tooth of sutural ridge moderately prominent and slightly elevated, serrate bimar-gined apices projecting beyond other teeth; disk convex with flattened area medially, elevated toward base, striae indistinct medially, more distinct laterally, alternate intervals subcostiform laterally, finely densely punctate and clothed by short semirecumbent white setae concentrated longitudinally along interstrial areas. Ventral surface finely, densely punctate, less so medially and clothed by recumbent and semirecumbent white setae that are more dense laterally; proventrite with anterior margin broadly arcuately emarginate; process broad and rounded at apex; abdomen with posterior margins of ventrites 1-4 glabrous and impunctate; ventrite 2 with glabrous central area and with broad impunctate concolorous lobe that extends over  $\frac{1}{3}$  of ventrite 3; ventrite 5 broadly triangular and projecting just beyond elytral apices, with blunt submarginal carina extending laterally beyond lateral margin in basal  $\frac{1}{2}$ , and meeting just before apex, apex sharp and slightly upturned. Legs with femora and tibiae finely moderately densely punctate and clothed as ventral surface; tarsi with evident pulvilli on tarsomeres 1-4, best developed on 4.

Female. Similar to male but abdominal ventrite 2 without or only a faint indication of a lobe.

Type Specimens. Described from nine males and eight females. Holotype male (UNAM) labelled "MEXICO, Puebla, 2.7 km NW Petlalcingo, 18°05'49", 97°56'49", 1500m, 7-VII-2001, R. L. Westcott (p)/ beating old dead branches of MIMOSA sp. (p)/ (red) HOLOTYPE *Paratyndaris westcotti* Nelson & Bellamy (p)". Paratypes as follows: 3♂♂, 2♀♀, same data as holotype; 1♂, 3♀♀, same data as holotype except 20-VII-2003; GUERRERO: 1♀, 40 km S Iguala, 19-VII-1986, J.Cope; 1♂, 6 km N Chilpancingo, 16-17-VII-1984, J. Cope; 1♂, 3 km S Mezcala, 550m, 16-VII-1992, C. L. Bellamy; 1♂, 10-12 km E Xochipala, 17°48', 98°25', 795-885 m, 30-VI-1992, R. L. Westcott; OAXACA: 1♂, near Tecomavaca, 500m, 28-VI-1972, G. H. Nelson, on dead limbs *Acacia*; PUEBLA: 1♀ 11.9 km SE Izucar de Matamoros, 22-VII-1992, G. H. Nelson, on dead *Acacia cochliacantha*; 1♂, 5 km NW Petlalcingo, 1400m, 18°04', 97°58' 5 & 7-VII-1992, R. L. Westcott. Paratypes deposited in CLBC, GHNC, RLWE.

Variation. The iridescence of the elytral lobe extends along the elytra base in some, otherwise there is little variation in color. In size the males vary from 8.0–10.9 mm long ( $\bar{x}$  = 9.8 mm, n = 9) and from 3.0–4.2 mm wide ( $\bar{x}$  = 3.7 mm, n = 9); females from 9.6–11.1 mm long ( $\bar{x}$  = 10.3 mm, n = 8) and 3.5–4.3 mm wide ( $\bar{x}$  = 3.8 mm, n = 8).

Distribution (Fig. 20). Known from localities in the Mexican states of Guerrero, Oaxaca and Puebla.

Biology. The larval habits are unknown. Adults have been collected on dead limbs of the following: *Acacia cochliacantha* Humb. & Bonpl., *Acacia* sp. and *Mimosa* sp.

Comparisons. This species is most closely similar to *P. crandalli* and is compared under that species.

Etymology. Named for our colleague and good friend, Richard L. Westcott, who collected most of the type series.

## 20. *Paratyndaris* (s. str.) *crandalli* Knull, 1941

(Figs. 21, 44)

*Paratyndaris olneyae crandalli* Knull, 1941:694; Blackwelder & Blackwelder, 1948:20; Vogt, 1949:195.

*Paratyndaris crandalli*: Knull, 1950:89.

*Ancylotela crandalli*: Barr, 1972:106 (in key).

Diagnosis. Robust; black with weak cupreous tint on some, immaculate; moderately densely clothed with recumbent and semirecumbent white setae that partially to completely obscure the surface; head with smooth median line on upper part; antennae serrate from antennomere 6; pronotum convex with midline impunctate shagreened groove that extends from shiny pit at posterior extreme to near anterior margin, disk finely densely punctate and asperate, more densely punctate laterally; elytra with strong rounded lobe below humeri, lateral margin dentate in apical half, with paired acute preapical teeth, apex tooth-like; abdominal ventrite 2 in male with broadly rounded concolorous lobe extending over 2/5 of 3, lobe in female over 1/4 of 3; ventrite 5 narrowly truncate at apex; tarsomeres 1-3 with pulvilli small, larger on 4.

Type Specimens. Described from nine males and eleven females. The holotype female (FMNH) is labelled as follows: "Laredo, Tex. VI-6-37 ♀ R. H. Crandall (h)/ (red) HOLOTYPE (p) *Paratyndaris olneyae crandalli* Knull (h)/ J. N. Knull Collection (p)/ *Paratyndaris crandalli* Knull det. J. Knull (p)".

Variation. Fairly uniform in general appearance. The males vary from 9.3–11.5 mm long ( $\bar{x}$  = 10.3 mm, n = 8) and 3.5–4.2 mm wide ( $\bar{x}$  = 3.8 mm, n = 8); females from 9.5–11.9 mm long ( $\bar{x}$  = 10.8 mm, n = 15) and 3.5–4.4 mm wide ( $\bar{x}$  = 3.9 mm, n = 15); 23 specimens were studied in total.

Distribution (Fig. 21). Known only from localities in the following counties: **UNITED STATES**. TEXAS: Dimmit Co. (RLWE); Frio Co. (Knull, 1950); Starr Co. (Vogt, 1949); Webb Co.; Zapata Co. (both, Knull, 1950).



**FIGURE 21**, known geographic distribution of: *Paratyndaris* (s. str.) *turbida*, sp. nov. (+); *P.* (s. str.) *crandalli* Knull (solid circles - ●); *P.* (s. str.) *subcostata* (Barr) (open triangle - △); *P.* (s. str.) *costata*, sp. nov. (open squares - □).

**Biology.** Adults found feeding on the bark of dead twigs of *Eysenhardtia texana* Scheele and *Prosopis glandulosa* Torr. (both, Vogt, 1949). Adults have been collected from May 17 to August 9.

**Comparisons.** In size and general appearance, *P. crandalli* is most similar to *P. westcotti* and *P. verityi*. The lateral red elytral maculae distinguishes *P. verityi* from the other two, which are immaculate. As indicated in the key the midline groove of the pronotum is distinct to past middle in *P. crandalli* and the elytral lobe is concolorous; in *P. westcotti* the pronotal groove is faint and the elytral lobe has iridescent rose color.

**21. *Paratyndaris* (s. str.) *subcostata* (Barr, 1972), comb. nov.**

(Figs. 21, 45)

*Ancylotela subcostata* Barr, 1972:95.

**Diagnosis.** Moderately robust; black with purplish reflections on head, lateral pronotum and beneath, elytra with red maculae at lateral margin just behind subhumeral lobe; clothed above and below by coarse white semirecumbent white setae, rather dense on



head, lateral pronotum, longitudinally on elytral intervals and ventrally; antennae serrate from antennomere 5; pronotum convex with midline groove, strong shiny and impunctate in posterior half, surface shagreened and punctato-asperate medially, densely punctate laterally; elytra with strong rounded subhumeral lobe, lateral margin coarsely dentate in apical half, paired subapical teeth, apex tooth-like; disk without longitudinal rows of teeth on posterolateral intervals, with even intervals elevated costae-like and mostly glabrous; abdominal ventrite 2 in male with dark brown broadly rounded median lobe extending to near middle of ventrite 3; tarsi with pulvilli relatively inconspicuous on tarsomeres 1-4.

Type Specimens. Described from a single male specimen. The holotype male (CASC) is labelled as follows: "MEXICO, Michoacan, 9 mi. E. Capirio, 800 6 July 1970 E. Fisher, P. Sullivan (p)/ (red) HOLOTYPE *Ancylotela subcostata* W. F. Barr (h)/ California Academy of Sciences Type No. (p) 11509 (h)".

Variation. Known only from the male holotype.

Distribution (Fig. 21). Known only from the type locality in Michoacan.

Biology. There is no information on the hosts of this species.

Comparisons. This species is most similar in size and structure to *P. costata* and is compared under that species.

## 22. *Paratyndaris* (s. str.) *costata* Nelson and Bellamy, sp. nov.

(Figs. 21, 46)

Diagnosis. Robust; black throughout; antennae serrate from antennomere 6; pronotum with midline groove; elytra with paired subapical teeth on lateral margin, disk with even interstitial intervals elevated costae-like and mostly glabrous; abdominal ventrite 2 in male with impunctate median lobe projecting to middle of ventrite 3, lobe weak in female; tarsi with pulvilli inconspicuous on tarsomeres 1-3, well developed on 4.

Description, holotype male. Size, 6.0 mm x 2.2 mm. Color uniformly black above and below without maculae. Head feebly convex; surface moderately densely finely punctate, clothed by long semirecumbent white setae; clypeus shallowly arcuately emarginate; antennae reaching anterior 1/4 of pronotum when laid alongside, antennae serrate with sensory fossae from antennomere 6. Pronotum slightly broader than long, broadest at middle; anterior margin weakly arcuate; sides in dorsal view arcuate; lateral margins distinct, narrowly impunctate and sinuate; posterior margin directed slightly posteriorward toward midline and notched for scutellum; disk strongly convex, with midline groove that is weak with few punctures in anterior half, stronger and impunctate in posterior half that is shagreened but with shiny deeper depression near posterior margin; surface opaque, densely punctate and asperate, clothed by semirecumbent white setae more numerous toward margins and on either side of midline groove. Scutellum diamond shape, glabrous, disk depressed. Elytra as wide as pronotum; sides, viewed from above, subparallel from humeri to middle, then gradually narrowing to apices; lateral margins, viewed from side,

obtusely rounded at base, strongly lobed below humeri, dentate behind middle; paired sub-apical teeth on lateral margin acute, sutural tooth slightly acute, tooth of sutural ridge prominent and elevated, bimargined toothlike apices extending beyond other teeth; disk with coarse stria punctures, interstria punctures slightly smaller, even interstria intervals elevated costae-like and mostly glabrous, linear concentration of semirecumbent white setae partially obscuring surface. Ventral surface densely clothed with moderately long semirecumbent white setae that partially obscure surface that is moderately densely punctate, more coarsely on thoracic ventrites, finer on abdominal ventrites; second abdominal ventrite in male with glabrous central area and broad impunctate median lobe projecting to middle of ventrite 3; ventrite 5 triangular, terminating in acute slightly upturned process notched at apex; laterally sublateral carinae join at apex. Legs with femora and tibiae finely sparsely punctate, clothed with semirecumbent white setae; tarsi with inconspicuous pulvilli on tarsomeres 1-3, well developed on 4.

Female. Similar to male except second abdominal ventrite has only a weak median lobe.

Type Specimens. Described from nine males and three females from Mexico, Puebla. Holotype male (UNAM) labeled "MEXICO: PUE 12.5 km SW Zapotitlan Salinas 1781m 18.16N 97.33W (p)/ CLB709 13.vii 1999 misc beating, thorn shrub CLBellamy (p)/ (red) HOLOTYPE *Paratyndaris costata* Nelson & Bellamy (p)". Paratypes as follows: 1♀, 2.5 km SW. Zapotitlan Salinas, N18.18 W97.31, 1515m, 8-VII-1992, C. L. Bellamy; 1♀, 12.5 km SW Zapotitlan Salinas, 1810m, 8-VII-1992, C. L. Bellamy; 3♂♂, 1♀, 12.5 km Zapotitlan Salinas, 1781m, 18.16N-97.33W, 17-VII-1996, CLB589, leg. C. L. Bellamy; 1♂, 2.5 km SW. Zapotitlan Salinas, 5000, 18.21N-97.30W, 15-VII-1996, CLB582, leg. C. L. Bellamy; 1♂, 2.5 km SW Zapotitlan Salinas, 18°18, 97°31, 1510m, 8-VII-1992, R. L. Westcott, beating *Prosopis laevigata*; 1♂, 2.5 km SW Zapotitlan Salinas, 1510m, 8-VII-1992, S. Bílý; 1♂, 13 km SW Zapotitlan Salinas, 1770m, 24-VI-1997, R. L. Westcott; 1♂, 1mi. N Coxcatlan, 28-VII-1973, D. S. Verity. Paratypes deposited in CLBC, DSVC, GHNC, NMPC, RLWE.

Variation. Little variation was observed in the type series. The males vary from 8.0–10.0 mm long ( $\bar{x}$  = 9.0 mm,  $n$  = 10) and 2.9–3.5 mm wide ( $\bar{x}$  = 3.3 mm,  $n$  = 10); females from 10.0–11.5 mm long ( $\bar{x}$  = 10.8 mm,  $n$  = 2) and 3.5–4.0 mm wide ( $\bar{x}$  = 3.8 mm,  $n$  = 2).

Distribution (Fig. 21). The type series specimens are all from the Mexican state of Puebla.

Biology. Nothing is known of the larval hosts and only one of the type series has any plant association, that being *Prosopis laevigata* (Willd.) M. C. Johnst.

Comparisons. *Paratyndaris costata* is closely similar to *P. subcostata* but differs as follows: it is concolorous while *P. subcostata* has a red spot on the lateral margin of the elytra at basal third; lateral margin of pronotum straight on *P. subcostata* but sinuous on *P. costata*, and antennae serrate from antennomere 6 in *P. costata*, 5 in *P. subcostata*.

Etymology. The specific epithet is derived from the costate condition of the elytra.

**23. *Paratyndaris* (s. str.) *prosopis* (Skinner, 1903)**

(Figs. 20, 47)

*Tyndaris prosopis* Skinner, 1903:237, Pl. 10, Fig. 6; Kerremans, 1907:567; Leng, 1920:178; Nelson, 1987:64.

*Paratyndaris prosopis*: Fisher, 1919:92; Chamberlin, 1926:225; Obenberger, 1926:55; Knull, 1937:255; Blackwelder, 1939:42; Nelson & Westcott, 1976:274.

*Ancylotela prosopis*: Barr, 1972:107 (in key).

**Diagnosis.** Relatively robust; black with various aeneous and/or cupreous tints, elytra with two pair of yellow maculae with iridescent blue halo, one pair just before middle near suture, the other at middle of lateral margin; moderately densely clothed with fairly long semirecumbent white hair-like setae, more dense on lateral pronotum and beneath; antennae serrate from antennomere 6; pronotum convex with broad median depression and midline groove that is partially shiny and impunctate, disk coarsely punctato-asperate becoming densely punctate laterally; elytra with moderate subhumeral subtruncate lobe, lateral margin dentate in apical half, with paired preapical acute teeth near tooth-like apex; disk with longitudinal rows of teeth on posterolateral intervals; abdominal ventrite 2 in male with broad subtruncate concolorous median lobe extending over 1/5 of ventrite 3, lobe lacking in female; tarsomeres with pulvilli narrow on 1, broader from 2-4.

**Type Specimens.** Described from a single female specimen. The holotype (USNM) is labelled as follows: "Austin 28.6. Tex (h)/ Coll Hubbard & Schwarz (p)/ on Mesquite (h)/ (red) Type No. (p) 6957 (h) U.S.N.M. (p)/ *Tyndaris prosopis* Skinner (h)".

**Variation.** The amount and location of aeneo-cupreous tint is variable as is the size of the elytral maculae, in one the discal spots are only iridescent blue. Males vary from 6.5 - 10.5 mm long ( $\bar{x}$  = 8.2 mm,  $n$  = 22) and 2.3-3.3 mm wide ( $\bar{x}$  = 2.7 mm,  $n$  = 22); females from 7.5-11.4 mm long ( $\bar{x}$  = 9.1 mm,  $n$  = 25) and 2.5-3.8 mm wide ( $\bar{x}$  = 3.1 mm,  $n$  = 25); 50 specimens were studied in total.

**Distribution** (Fig. 20). **UNITED STATES.** ARKANSAS: Logan Co., Magazine Mt. (TCMC); MISSISSIPPI: Oktibbeha Co.; OKLAHOMA: Lattimer Co., 5 mi. W Red Oak (Nelson, 1987); TEXAS: Bastrop Co., Bastrop St. Pk.; Brewster Co., Chisos Mts. (previous 2 Nelson & Westcott, 1976); Brooks Co., Barroso; Gillespie Co., (Knull, 1937); Jeff Davis Co., Ft. Davis Mts. Resort (FSCA); Kimble Co., (WFBM); Medina Co., 1 mi. E Natalia (Nelson & Westcott, 1976).

**Biology.** Reared from *Prosopis glandulosa* Torr. (Skinner, 1903), and *Quercus pungens* var. *vaseyana* (Buckley) C. H. Muller (TCMC). Adults have also been collected on *Quercus marilandica* Muenchh. (Nelson, 1987), and *Q. stellata* Wang. (Nelson & Westcott, 1976). Adults have been collected from June 9 to August 3.

**Comparisons.** The bronzed general color, placement and color of elytral maculae, and broad median pronotal depression will serve to distinguish *P. prosopis* from all other species.

**24. *Paratyndaris* (s. str.) *cincta* (Horn, 1885)**

(Figs. 23, 48)

*Tyndaris cincta* Horn, 1885:147; Kerremans, 1892:165; 1902:40; 1907:562; Skinner, 1903:Pl. 10, Fig. 5 (adult); Leng, 1920:178;

*Paratyndaris cincta*: Fisher, 1919:92; Chamberlin, 1926:225; Obenberger, 1926:55; Knull, 1937:254; Blackwelder, 1939:42.

*Ancylotela cincta*: Barr, 1972:107 (in key).

**Diagnosis.** Large species, 7.8–13.0 mm long; black, elytra with aeneous tint and with red macula extending along lateral margin from lobe to middle with medial extension to near suture; clothed by recumbent white hair-like setae more dense below; antennae serrate from antennomere 6; pronotum strongly convex with smooth midline groove extending from posterior margin to near anterior margin, surface finely densely punctate laterally, small transverse asperites medially; elytra with strongly rounded subhumeral lobe and bilaminar preapical acute teeth, apex tooth-like; disk with few interstrial teeth posterolaterally; abdominal ventrite 2 in male with broadly arcuate concolorous lobe extending over 1/3 of ventrite 3, in female lobe lacking; tarsomeres with pulvilli increasing in size from 1–4.

**Description, plesiotype male.** Size, 10.2 mm x 3.6 mm. Color, head, pronotum and beneath black, elytra with aeneous tint and red macula with iridescent blue halo extending along lateral margin from lobe to middle with extension medially to near suture; moderately clothed above by short white semirecumbent hair-like setae, more dense ventrally. Head with front smooth, moderately densely finely punctate with few transverse rugae on lower front, clothed by long white hair-like setae; clypeus broadly semicircularly emarginate; antennae reaching anterior 1/4 of pronotum when laid alongside, serrate from antennomere 6. Pronotum 1.3 x wider than long, broadest at middle; anterior margin broadly arcuate; sides in dorsal view arcuate; lateral margin distinct, broadly impunctate; posterior margin transverse with small notch before scutellum; disk strongly convex with broad smooth groove that narrows anteriorly and with pit at posterior extreme; surface with small transverse asperites lateral to groove, densely finely punctate laterally. Scutellum elongate oval with depression at middle and micro punctures around it. Elytra as wide as pronotum at base; sides in dorsal view subparallel in basal half then arcuately converging to apex; lateral margins, viewed from side, obtusely rounded at base, strongly lobed below humeri, weakly dentate in apical half; paired subapical acute teeth on lateral margin, sutural tooth acute, tooth of sutural ridge prominent and elevated, bimargined toothlike apices extending slightly beyond other teeth; disk with striae weakly evident, intervals flattened medially toward base, becoming more convex laterally and apically, densely finely punctate with a few small teeth posterolaterally on disk. Ventral surface finely densely punctate, partially obscured by pubescence; abdominal ventrite 2 in male with broadly arcuate concolorous lobe extending over 1/3 of ventrite 3; ventrite 5 triangular, terminating in a sharply acute process; blunt sublateral carina extending beyond lateral margin basally, carinae join just before apex. *Legs* finely sparsely punctate with recumbent white setae; tarsomeres increasing in size from 1–4.



**FIGURE 23**, known geographic distribution of: *Paratyndaris* (s. str.) *cincta* (Horn) (+); *P.* (s. str.) *robusta* (Dozier) (open circle - ○); *P.* (s. str.) *mimica*, sp. nov. (open circle - ○); *P.* (s. str.) *nelsoni* (Barr) (open triangles - △); *P.* (s. str.) *uniformis*, sp. nov. (open square - □) [at this scale, the localities for *P.* (s. str.) *robusta* and *P.* (s. str.) *mimica* are the same].

Female. Similar to male except abdominal ventrite 2 lacks a lobe.

Type Specimens. Described from a single specimen. The holotype male (MCZC) is labelled as follows: “Tex (p)/ (red) HoloTYPE (p) 3473 (h)/ Tyndaris cincta Horn (h)/ (red) MCZ (h) HOLOTYPE (p) 33815 (h)”.

Variation. There is some variation in the extent of the red elytral maculae, in one they extend medially to the suture. The males vary from 7.8 - 10.8 mm long ( $\bar{x}$  = 9.5 mm,  $n$  = 10) and 2.6–3.8 mm wide ( $\bar{x}$  = 3.3 mm,  $n$  = 10); females from 9.6–13.0 mm long ( $\bar{x}$  = 11.5 mm,  $n$  = 9) and 3.4–4.5 mm wide ( $\bar{x}$  = 4.1 mm,  $n$  = 9); 20 specimens were studied in total.

The concept of this species, based for many years on the unique holotype specimen, was distorted. Examination of the type reveals it to be a sun-bleached carcass on which the normally reddish elytral maculae are bleached to a cream color that is darker toward the lateral margins.

Distribution (Fig. 23). **UNITED STATES**. TEXAS: Starr Co., Falcon Heights (CLBC, GHNC, TAMU, TCMC). **MEXICO**. SAN LUIS POTOSI: 41 mi. N San Luis Potosi (GHNC).

Biology. Reared from *Pithecellobium ebano* (Berl.) C. H. Muller [= *P. flexicaule* (Benth.) J. M. Coult.] (CLBC, GHNC, TAMU, TCMC). Adults also on *Prosopis glandu-*

*losa* Torr. (GHNC). Adults have been collected from an unspecified date in July to October 13.

Comparisons. *Paratyndaris grassmani* and *P. mexicana* are similar in appearance but have much stronger interstitial teeth on elytra and the red maculae differ. *Paratyndaris nelsoni*, *P. mimica* and *P. robusta* appear similar but they lack the median pronotal groove and *P. robusta* lacks interstitial elytral teeth.

## 25. *Paratyndaris* (s. str.) *grassmani* Parker, 1947

(Figs. 9, 22, 50)

*Paratyndaris grassmani* Parker, 1947:31; Blackwelder & Blackwelder, 1948:20.

*Ancylotela grassmani*: Barr, 1972:107 (in key).

*Tyndaris grassmani*: Nelson, 1987:64.

Diagnosis. Robust; head, pronotum and below black, elytra black with faint purplish or aeneous tint with three pair of reddish maculae, two along lateral margin, at elytral lobe and at middle and one at base midway between suture and humeral umbone; clothed by recumbent white setae, short and inconspicuous above, longer and dense below; antennae serrate from antennomere 5 (Fig. 9); pronotum convex with narrow midline sulcus extending to near anterior margin, shiny in posterior half, disk densely asperate becoming densely punctate laterally; elytra with subhumeral lobe large and rounded, lateral margin dentate in apical half with paired acute teeth near apex; apex tooth-like; disk with longitudinal rows of teeth on posterolateral interstitial spaces (Fig. 50b); abdominal ventrite 2 in male with broadly rounded median lobe extending over ¼ of ventrite 3, only a hint of lobe in female; tarsomeres with pulvilli narrow on 1-3, broad on 4.

Type Specimens. Described from a series of both sexes. The holotype male (CASC) is labelled as follows: "Cave Cr., Ariz. Maricopa County (p) IX-4 (h)-19 (p) 44 (h) F. H. Parker (p)/ *Olneya tesota* (h)/ (red) Holotype ♂ *Paratyndaris grassmani* Parker (h)/ California Academy of Sciences Type No. (p) 8119 (h)".

Variation. There is slight variation in the size of the red elytral maculae. The males vary from 7.5 - 10.5 mm long ( $\bar{x}$  = 9.2 mm, n = 12) and 2.5-3.5 mm wide ( $\bar{x}$  = 9.2 mm, n = 12); females from 8.0-12.5 mm long ( $\bar{x}$  = 10.3 mm, n = 23) and 2.7-4.2 mm wide ( $\bar{x}$  = 3.5 mm, n = 23); 35 specimens were studied in total.

Distribution (Fig. 22). **UNITED STATES.** ARIZONA: Maricopa Co., Cave Creek (type locality). **MEXICO.** SONORA: 14 mi. S Sonoyta (DSVC).

Biology. Reared from *Olneya tesota* Gray (WFBC). Adults have also been collected on *Celtis pallida* Torr. (Nelson, 1987), *Cercidium floridum* Benth. (Parker, 1947), and *Condalia lycoides* (Gray) Weberb. (Nelson, 1987). Adults have been collected from August 8 to September 11.

Comparisons. This species is closely similar to *P. mexicana*, both with discal red maculae on elytra and interstitial teeth on posterolateral part thereof. *Paratyndaris grassmani* differs by having antennae serrate from antennomere 5 and pronotum with distinct midline groove that extends at least to middle; *P. mexicana* has antennae serrate from 6 and pronotum midline groove indistinct and confined to posterior part.

## 26. *Paratyndaris* (s. str.) *mexicana* Fisher, 1933

(Figs. 22, 51)

*Paratyndaris mexicana* Fisher, 1933:4; Blackwelder, 1944:307.

*Ancylotela mexicana*: Barr, 1972:107 (in key).

*Ancylotela sonora* Barr, 1972:99. **syn. nov.**

Diagnosis. Robust; head, pronotum and below black, elytra black with faint purplish or aeneous cast with three pair of reddish maculae, two along lateral margin, at elytral lobe and at middle and one at base midway between suture and humeral umbone; clothed by semirecumbent white setae, longer and more dense below, antennae serrate from antennomere 6; pronotum convex with indistinct midline depression in posterior half, disk densely asperate becoming punctate laterally; elytra with subhumeral lobe large and rounded, lateral margin dentate in apical half with paired acute teeth near apex, apex tooth-like; disk with longitudinal rows of teeth on posterolateral interstitial spaces; abdominal ventrite 2 in male with broadly rounded brownish lobe extending over  $\frac{1}{4}$  of 3, only a hint of lobe in female; tarsomeres with pulvilli relatively narrow on 1-3, broad on 4.

Type Specimens. *Paratyndaris mexicana* Fisher was described from a single male. The holotype male (USNM) is labelled as follows: "Los Mochis Sinaloa Mex. VII (p) 2 (h) 192 (p) 4 (h)/ R. H. Van Zwaluwenberg (p)/ (red) Type No. (p) 49552 (h) U.S.N.M. (p)/ *Paratyndaris mexicana* Fisher (h)".

*Ancylotela sonora* Barr was described from a short series of both sexes. The holotype male (CASC) is labeled as follows: MEX., SONORA Hwy. 15, 12 mi. N of Hermosillo VIII-14-1965 (p)/ collector G. H. Nelson (p)/ On *Olneya tesota* Gray (p)/ C (h in red pencil)/ *mexicana*? (762) Fishr. (h in red pencil)/ (red) HOLOTYPE *Ancylotela sonora* W. F. Barr (h)/ California Academy of Sciences Type No. (p) 14096 (h). A comparison of the types of *P. mexicana* and *A. sonora* indicates they represent the same species.

Variation. There is slight variation in the size of the elytral maculae. The males vary from 9.2 - 10.2 mm long ( $\bar{x}$  = 9.6 mm,  $n$  = 4) and 3.0–3.4 mm wide ( $\bar{x}$  = 3.3 mm,  $n$  = 4); females from 9.0–10.8 mm long ( $\bar{x}$  = 10.0 mm,  $n$  = 4) and 3.0–3.6 mm wide ( $\bar{x}$  = 3.4 mm,  $n$  = 4); 8 specimens were studied in total.

Distribution (Fig. 22). **MEXICO**. SINALOA: Los Mochis (type locality); SONORA: 12 mi. N Hermosillo (Barr, 1972).

Biology. Larval habits are unknown. One adult was collected on *Olneya tesota* Gray (Barr, 1972). Adults have been collected from July 21 to August 10.

Comparisons. This species is most closely similar to *P. grassmani* under which it is compared.

**27. *Paratyndaris* (s. str.) *robusta* (Dozier, 1988)**  
(Figs. 23, 52, 75)

*Tyndaris* (*Paratyndaris*) *robusta* Dozier, 1988:334, Fig. 1 (holotype).

Diagnosis. Robust; black with blue tint, elytra with red on subhumeral lobe extending along lateral margin with broad transverse extension to near suture filling area from anterior 2/5 to middle; clothed, except for middle of pronotal disk, by recumbent and semirecumbent white hairlike setae, longer and more dense laterally on pronotum and ventrally; antennae reaching anterior third of pronotum when laid alongside, serrate from antennomere 6; pronotum strongly convex, without groove but with partial midline impunctate area, surface finely transversely asperate medially becoming finely densely punctate laterally; elytra with strong rounded subhumeral lobe, lateral margin finely dentate on apical half, with paired preapical acute teeth, apex tooth-like, disk with slight swelling posterolaterally but without teeth; abdominal ventrite 2 in male with broadly rounded lobe extending over 1/3 of ventrite 3, in female there is only a hint of concolorous lobe; tarsomeres 1-4 with well developed pulvilli.

Type Specimens. Described from a series of both sexes. The holotype male (FSCA) is labelled as follows: "MEX: Michoacan 18-20 mi. S. Capirio VII. (21-22) 1984 (p)/ B. K. Dozier Coll. (p)/ (yellow) HOLOTYPE *Tyndaris robusta* B. Dozier (p)".

Variation. There is little variation in the type series. The males vary from 10.5–11.7 mm long and 4.2–4.6 mm wide; females from 8.2–12.0 mm long, and 3.5–5.0 mm wide.

Distribution (Fig. 23). Known only from the type locality in the Mexican state of Michoacan.

Biology. The larval hosts are unknown. The type series was taken from intermixed *Acacia*, *Prosopis* and dead branches of *Randia* sp. This large, robust species is likely a mimic of chrysomelids of the genus *Megalostomis* which have been seen sitting on dead branches with adults of *P. robusta*. Adults have been collected from July 21 to September 18.

Comparisons. No other species is as robust as this species. The species most closely similar include *P. nelsoni*, and *P. cincta*. *P. robusta* is contrasted with both under *P. cincta*.

**28. *Paratyndaris* (s. str.) *nelsoni* (Barr, 1972)**  
(Figs. 23, 53)

*Ancylotela nelsoni* Barr, 1972:97.



Diagnosis. Robust; head, pronotum and beneath black, commonly with blue tint on pronotum, elytra black with shiny aeneous hue, with pair of red maculae beginning on subhumeral lobe extending along lateral margin to near middle with triangular or rounded medial extension, with iridescent blue halo around red maculae; moderately clothed by recumbent and semirecumbent white hair-like setae longer toward elytral base, lateral pronotum and more dense ventrally; antennae serrate from antennomere 6; pronotum evenly convex without midline sulcus; elytra with strong rounded subhumeral lobe, lateral margin weakly serrate in apical half, with paired preapical acute teeth, apex bluntly tooth-like; elytral disk with longitudinal rows of teeth on posterolateral interstitial intervals; abdominal ventrite 2 in male with broadly rounded lobe extending over  $\frac{1}{4}$  of 3, in female lobe is lacking; tarsomeres 1-4 with well developed pulvilli; male genitalia (Fig. 53c) moderate in length, swollen toward base.

Type Specimens. *Ancylotela nelsoni* Barr was described from five female specimens. The holotype (CASC) is labelled as follows: "MEX., OAXACA 3 mi. W. of Tehuantepec VII-9-1965 (p)/ Collector G. H. Nelson (p)/ On Dead Limbs (p)/ (red) HOLOTYPE *Ancylotela nelsoni* W.F.Barr (h)/ California Academy of Sciences Type No. (p) 14095 (h)".

Variation. There is a great deal of variation in the size of the red elytral maculae that usually extend onto disk from lateral margin, however, as in the type there may be no medial extension and in the type the area where the usual medial extension is, is marked by iridescent blue. Males vary from 8.5–9.8 mm long ( $\bar{x}$  = 9.4 mm,  $n$  = 7) and 3.0–3.5 mm wide ( $\bar{x}$  = 3.2 mm,  $n$  = 7); females from 9.0–11.1 mm long ( $\bar{x}$  = 10.0 mm,  $n$  = 11) and 3.1–3.9 mm wide ( $\bar{x}$  = 3.5 mm,  $n$  = 11).

Distribution (Fig. 23). **MEXICO.** GUERRERO: SE of Xalitla (CLBC); JALISCO: near Estacion de Biologia Chamela UNAM (CLBC, JEWG); OAXACA: 3 mi. W of Tehuantepec (type locality); 16 mi. NE Tehuantepec; 44 km NW Tehuantepec.

Biology. Larval hosts are unknown. Adults on *Acacia cochliacantha* Humb. & Bonpl., *A. pennatula* (S. & C.) Benth. (previous 2, GHNC), dead *Cassia* sp. (DSVC, GHNC), *Haematoxylon* sp. (TCMC). Adults have been collected from July 8 to 20.

Comparisons. *Paratyndaris nelsoni* is most closely similar to *P. mimica* but the longer more dense elytral setae and shape of male genitalia will distinguish them. It is also similar to *P. cincta* and *P. robusta* and is contrasted with them under *P. cincta*.

## 29. *Paratyndaris* (s. str.) *mimica* Nelson and Bellamy, sp. nov. (Figs. 23, 54, 73)

Diagnosis. Robust; color bluish-black, elytra with iridescent reflections and large red macula with blue halo along lateral margin from base subhumeral to just past middle; elytra sparsely clothed with short semirecumbent white setae; antennae serrate from antennomere 6; pronotum evenly convex without midline sulcus; elytra with strong rounded subhumeral lobe, lateral margin weakly dentate in apical  $\frac{1}{2}$ , with paired preapical acute teeth;

elytral disk with longitudinal rows of teeth on some posterolateral intervals; abdominal ventrite 2 in male with broadly rounded lobe extending over 1/5 of 3, lobe lacking in female; tarsomeres 1-4 with well developed pulvilli; male genitalia (Fig. 54c) elongate slender, not swollen toward base.

Description, holotype male. Size, 9.0 mm x 3.0 mm. Color bluish-black above and below, elytra with iridescent reflections and red macula along lateral margin from base sub-humerally to just past middle that extends medially to second punctate stria, macula margined by darker blue. Head surface shiny, moderately densely punctate, clothed with moderately long semirecumbent white setae; clypeus broadly triangularly emarginate; antennae reaching to near anterior 1/3 when laid alongside, antennomeres triangular with sensory fossae from 6. Pronotum width 1.3 x length, widest at middle; anterior margin transverse; sides in dorsal view arcuate, narrowest anteriorly; lateral margin distinct, impunctate, slightly sinuate; posterior margin converging weakly posteriorward toward midline; disk strongly convex without midline sulcus; surface opaque, shagreened and densely punctate with recumbent white setae laterally. Scutellum elongate, elliptical, disk glabrous, shiny, slightly irregular. Elytra subequal in width to pronotum at base; sides viewed dorsally, subparallel in apical 1/3, then moderately converging to apices, weakly dentate in apical 1/2, lateral margin viewed from side with strong rounded subhumeral lobe; apices with paired subapical acute teeth laterally, small sutural tooth acute, tooth of sutural ridge moderately prominent and elevated, bimarginal tooth-like apices extending slightly beyond other teeth; disk moderately convex, flattened medially, with some longitudinal rows of teeth on disk posterolaterally, striae distinct with large punctures, intervals flat medially, convex laterally with small irregular punctures, with sparse short semierect white setae more numerous laterally. Ventral surface moderately punctate and clothed with long semierect white setae medially on thoracic ventrites, setae more dense and semirecumbent to recumbent laterally; proventrite epimeron shiny with only few punctures; also glabrous and impunctate are posterior margin of abdominal ventrite 2, anterior and posterior margins of 3 and 4 and anterior margin of 5; posterior margin of ventrite 2 with broadly rounded brownish lobe extending over 1/5 of ventrite 3; ventrite 5 triangular, terminating acutely, with blunt submarginal carina. Legs moderately finely punctate and clothed with recumbent and semirecumbent white setae; tarsi with well developed pulvilli on tarsomeres 1-4. Male genitalia (Fig. 54c) elongate slender, not appreciably enlarged basally.

Female. Differs from male in lacking a median lobe on abdominal ventrite 2.

Type Specimens. Described from seven males and five females. Holotype male (UNAM) labelled "MICHOACAN, road to Tumbisatio, 4.7 km SW hwy 37, 295m 18°48.496, 102°10.265, 24.vii.03, R. L. Westcott, beating old dead twigs and branches". Paratypes as follows from MICHOACAN: 1♂, same data as holotype; 1♂, 1♀, km 167.5 hwy. 37, 32 km S. Cuatro Caminos, 230m, N18°47.643, W102°04.782, 24/25.vii.03, R. L. Westcott, beating old dead twigs and branches; 1♀, same except 28.viii.02; 1♀, 2.3 km S

Cupuancillo (hwy. 37, S of Chilar), N18°47.862, W102°06.408, 195m, 24.vii.03, R. L. Westcott, beating old dead twigs and branches; 1♂, 9 km SE Zicuirán, road to C. de Morelos, 380m, N18°50.837, W101°54.835, 23.vii.03, R. L. Westcott, beating old dead twigs and branches; 1♂, 1♀, 17 km N Las Cañas, km.190, Hwy. 37, 285m, N18°41.000, W101°59.694, 28.viii.02, R. L. Westcott, on upright old dead twig; 1♂, km 167.5, 32 km S Cuatro Caminos, N18°47.643, W102°04.782, 230m, 24-25.vii.2003, C. L. Bellamy, CLB866, beating misc.; 1♂, same except beating dead *Randia* sp.; 1♀, 5 km W Zicuirán, hwy to Cuatro Caminos, 250m, N18°53.548, W102°01.030, 26-27.vii.2002, C. L. Bellamy CLB805 beating dead legume stems. Paratypes deposited in CLBC, GHNC, RLWE.

Variation. There is some variation in the intensity of the blue in the base color and in the size of the red maculae. The males vary from 8.3–10.0 mm long ( $\bar{x}$  = 9.4 mm,  $n$  = 7) and 2.8–3.6 mm wide ( $\bar{x}$  = 3.2 mm,  $n$  = 7); females from 7.8–10.6 mm long ( $\bar{x}$  = 8.8 mm,  $n$  = 5) and 2.6–3.5 mm wide ( $\bar{x}$  = 3.0 mm,  $n$  = 5). Two specimens are different enough from typical *P. mimica* for us to exclude them from the type series: GUERRERO: 1 ♂ (GHNC), Hwy. 95, 6.3 km N Rio Mexcala, 7. VII. 92, on deads limbs, G. H. Nelson; 1 ♂ (RLWE), 3 km SE Xalitla, 610 m 18°00', 98°24', 16. VII. 92, R. L. Westcott.

Distribution (Fig. 23). This species is known from southern Michoacan in Mexico.

Biology. Nothing is known of the larval hosts of this species and the only clue to adult habits is they have all been taken on dead limbs and twigs, one on *Randia* sp. and one on “legume”.

Comparisons. This species is closest to *P. nelsoni* under which it is contrasted. It is compared to *P. cincta* and *P. robusta* under the former species above.

Etymology. Named because of its putative mimicry with some clytrine chrysomelids, including *Megalostomis* spp. (Chrysomelidae, Clytrinae).

### 30. *Paratyndaris* (s. str.) *uniformis* Nelson and Bellamy, sp. nov. (Figs. 23, 55)

Diagnosis. Somewhat slender; uniformly black throughout with bluish and purplish tints, immaculate; moderately clothed by semirecumbent white hair-like setae more dense below; antennae serrate from antennomere 5; pronotum strongly convex without midline groove, disk shagreened and punctato-asperate medially more densely punctate laterally; elytra with strong rounded subhumeral lobe, lateral margin moderately dentate in apical half, with paired preapical teeth near apex, apex tooth-like; disk with longitudinal rows of teeth on some posterolateral interstriae; abdominal ventrite 2 in male with broadly rounded brownish median lobe extending over ¼ of ventrite 3, tarsomeres with well developed pulvilli on 1-4.

Description, holotype male. Size, 8.7 mm x 2.9 mm. Color uniformly black with blue and purple tints above and below, without maculae. Head feebly convex; surface shiny and moderately densely finely punctate with somewhat short semirecumbent white setae;

clypeus broadly shallowly triangularly emarginate; antennae reaching anterior 1/4 of pronotum when laid alongside, serrate part with sensory fossae from antennomere 5. *Pronotum* slightly wider than long, widest at middle; anterior margin weakly arcuate; sides in dorsal view arcuate; lateral margins broadly distinct, glabrous, impunctate, shiny and sinuate; posterior margin directed slightly posteriorly toward midline with slight notch for scutellum; disk strongly convex without midline groove, surface shagreened and densely punctate, more so toward sides, some punctures posteromedially hat-shaped, clothed by moderate, semirecumbent white setae more dense laterally. Scutellum elongate-oval, glabrous with two small and many minute punctures. Elytra subequal in width at base to pronotum; sides, viewed dorsally, subparallel in basal 3/5 then arcuately converging to apices; lateral margins, viewed from side, obtusely rounded at base, strongly lobed below humeri, weakly dentate in apical 1/2; paired subapical acute teeth on lateral margin, sutural tooth acute, tooth of sutural ridge prominent and slightly elevated, bimarginal toothlike apices with lower part blunt and projecting beyond other teeth; disk with moderate size striae punctures, interstriae more finely punctate with interstriae slightly convex on lateral 1/2, and with longitudinal rows of teeth on some posterolateral interstriae, moderately clothed by short semirecumbent white setae. Ventral surface densely clothed by recumbent and semirecumbent white setae, less dense medially, moderately densely punctate, punctures finer on abdomen, proventrite epimeron shiny with only a few punctures; abdominal ventrites 1-4 with glabrous impunctate posterior margins; abdominal ventrite 2 with glabrous area medially and broad brown median lobe extending over 1/4 of ventrite 3; ventrite 5 triangular, terminating in sharp upturned process; sublateral carinae extend beyond lateral margin at base and join just before apex. Legs moderately finely punctate and clothed by recumbent and semirecumbent white setae; tarsi with well developed pulvilli on tarsomeres 1-4.

Female. Unknown.

Type Specimens. Described from a single male. Holotype male (UNAM) labelled "MEX., OAXACA 3 mi. W. of Tehuantepec VII-19-1965 (p)/ collector G. H. Nelson (p)/ on dead limbs (p)/ On *Acacia pennatula* (S. & C.) Benth. (p)/ (red) HOLOTYPE *Paratyndaris uniformis* Nelson & Bellamy (p)".

Distribution (Fig. 23). Known only from the single Mexican locality in southern Oaxaca.

Biology. Larval hosts are unknown and the single male was beaten from the dead limb of *Acacia pennatula* (S. & C.) Benth.

Comparisons. Of the immaculate species with evenly convex pronota, *P. uniformis* is most similar to *P. dozieri* and is compared under that species.

Etymology. Named for the uniform appearance of the type specimen.

**31. *Paratyndaris* (s. str.) *turbida* Nelson and Bellamy, sp. nov.**  
(Figs. 21, 56)

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**Diagnosis.** Moderately slender; black with cupreous tint, immaculate; clothed above and below with long white setae that appear messy on elytra; antennae serrate from antennomere 7; pronotum strongly convex with hint of midline depression posteriorly, densely coarsely punctato-asperate medially, punctate laterally; elytra with moderate subtruncate lobe below humeri, lateral margin finely dentate in apical half (not visible from above), with paired preapical acute teeth, apex tooth-like; disk without longitudinal rows of teeth on posterolateral intervals; abdominal ventrite 2 in male with median lobe extending over 1/3 of ventrite 3; in female there is only hint of lobe; tarsomeres with pulvilli relatively narrow on 1-3, wider on 4.

**Description, holotype male.** Size, 5.6 mm x 1.9 mm. Color black with cupreous tint without maculae. Head with front weakly convex; surface moderately coarsely and densely punctate and clothed by medium long semirecumbent white setae not obscuring sculpture; clypeus shallowly arcuately emarginate; antennae short reaching to near anterior 1/4 of pronotum when laid alongside, serrate from antennomere 7. Pronotum width 1.2 x length, widest just before middle; anterior margin weakly arcuate; sides in dorsal view arcuate anteriorly, then from widest point gently converging to rectangular posterior angle; lateral margins distinct and straight but narrowly impunctate; posterior margin weakly converging posteriorly toward scutellum; disk strongly convex without hint of glabrous impunctate midline groove posteriorly, surface with asperites on center and posterior areas becoming punctate laterally and anteriorly, sparsely clothed by short semirecumbent white setae that are more numerous laterally. Scutellum slightly elongate oval, glabrous disk with two large punctures. Elytra subequal in width to pronotum at base; sides viewed dorsally subparallel in anterior 5/8 then arcuately converging to apex; lateral margins, viewed from side, obtusely rounded at base, moderately subtruncate lobed below humeri, dentate from just behind metacoxae to apex; paired subapical acute teeth on lateral margin, sutural teeth acute, tooth of sutural ridge prominent and slightly elevated, apex of elytra serrate and projecting slightly beyond other teeth; disk slightly swollen at base on medial half, slightly elevated longitudinally from humeral umbone posteromedially to near middle and another costa-like elevation midway from humeral elevation to lateral margin; striae indicated by moderately large punctures, interstrial space densely punctate with punctures smaller becoming less dense apically, interstrial area clothed by moderately long semirecumbent white setae. Ventral surface moderately densely punctate, punctures smaller on abdomen and entire surface clothed by short and moderately long recumbent and semirecumbent white setae, setae more dense laterally; proventrite anterior margin shallowly arcuately emarginate, process broad with apex rounded; abdominal ventrites 1-4 with glabrous impunctate area along posterior margins; posterior margins of ventrite 1 sinuous; ventrite 2 with broadly rounded concolorous lobe extending over 1/3 of ventrite 3; ventrite 5 broadly triangular, apex projecting well beyond elytra, with blunt submarginal

carina extending laterally beyond lateral margin in basal  $\frac{1}{2}$  and meeting just before apex, apex acute with tip truncate and slightly upturned. Legs with femora and tibiae sparsely punctate and moderately clothed by recumbent white setae; tarsi with fairly narrow pulvilli on tarsomeres 1-4, best developed on 4.

Female. Similar to male but abdominal ventrite 2 with only hint of concolorous lobe.

Type Specimens. Described from 89 males and 76 females. Holotype male (UNAM) labelled "PUEBLA, 2.5 km SW Zapotitlán Salinas, 18°18N, 97°31W, 1510m, 13.vii.99 (p)/ beating dead branches mesquite, R. L. Westcott (p)/ (red) HOLOTYPE *Paratyndaris turbida* Nelson & Bellamy (p)". Paratypes as follows: 3♂♂, 6♀♀, same data as holotype; 8♂♂, 10♀♀, same data as holotype except 15.VII.1996; 2♂♂, 4♀♀, same data as holotype except 24.VI.1997; PUEBLA: 2♂♂, 3♀♀, 12.5 km SW Zapotitlán Salinas, 18°15, 97°33, 1680m, 8.VII.1992, R. L. Westcott; 2♂♂, 2♀♀, 13 km SW Zapotitlán Salinas, 1770m, 24.VI.1997, R. L. Westcott; 1♂, 4 km NW Tilapa, 18°10.38 N, 97°07.68 W, 945m, 16.VI.2000, R. L. Westcott; 7♂♂, 6♀♀, 7 km NNE Acatepec, 1780m, 18°16N, 97°33W, 17.VII.1996; 11♂♂, 8♀♀, type locality, 8.VII.1992, C. L. Bellamy; 2♂♂, 1♀, Hwy. 125, 2 km S Zapotitlán, 19-VII-1992, G. H. Nelson, on mesquite; 7♂♂, 5♀♀, 2.5 km SW Zapotitlán Salinas, 5000, 18.21N 97.30W, 15.VII.1996, CLB: 582, C. L. Bellamy; 10♂♂, 1♀, 2.5 km S.W. Zapotitlán Salinas, 5100, 18.20N, 97.30W, 4.VII.1996, CLB: 570, C. L. Bellamy; 1♂, 1♀, type locality, 13.VII.1999, CLB 707, beating misc. thorn scrub, C. L. Bellamy; 4♂♂, 2♀♀, 12.5 km SW Zapotitlán Salinas, 1781m, 18.16N, 97.33W, 13.VII.1999, CLB 589, C. L. Bellamy, beating misc. thorn scrub; 5♂♂, 6♀♀, same locality, 17.VII.1996, CLB 589, C. L. Bellamy; 2♂♂, 1♀, 2 km S Zapotitlán Salinas, 8.VII.1992, H. Mühle; 3♀♀, Zapotitlan distr., 8.VII.1992, M. Volkovitsh; 3♂♂, 1♀, 7 not sexed, type locality, 8.VII.1992, S. Bílý; 1♀, 12.5 km SW Zapotitlán Salinas, 1810m, 8.VII.1992, C. L. Bellamy; 3♀♀, between Coxcatlán & Guad. Victoria, 980m, 18.14N-97.09W, 16.VII.1996, CLB 587, C. L. Bellamy; 1♂, 1♀, 1.2 km SE San Juan Raya, 1625m, 18.20N-97.35W, 15.VII.1996, CLB 583, C. L. Bellamy; 15♂♂, 7♀♀, 1mi. N Coxcatlan, 28.VII.1973, D. S. Verity; OAXACA: 2♂♂, 4♀♀, Domingullo, 19 km SSE Cuicatlán, 760m, 17°38'54", 96°54'42", 17.VI.2000, R. L. Westcott; 3♂♂, near Tecomavaca, 500m, 28.VI.1972, G. H. Nelson, on dead limbs *Acacia* sp. Paratypes deposited in CLBC, DSVC, FSCA, GHNC, HMMC, NMPC, RLWE, TCMC, ZMAS.

Variation. There is some variation in the pronotal midline groove, weak in some and an impunctate shiny spot sometimes present at the posterior extreme of the pronotal midline, and the elytral setae vary in pattern, sometimes appearing semivittate. Males vary from 5.0–7.2 mm long ( $\bar{x}$  = 6.0 mm, n = 25) and from 1.7 - 2.5 mm wide ( $\bar{x}$  = 2.1 mm, n = 25); females from 4.9 - 7.5 mm long ( $\bar{x}$  = 6.0 mm, n = 25) and 1.7–2.6 mm wide ( $\bar{x}$  = 2.1 mm, n = 25). One ♀ (DSVC), MEXICO, PUEBLA: Hwy. 190, 12 km SE Izucar de Matamoros, 22.VII.1992, on dead burned trees and shrubs, D. S. Verity, collr., is either an aberrant *P. turbida* or possibly represents a new species.

Distribution (Fig. 21). This species is only known from localities in the Mexican states of Oaxaca and Puebla.

Biology. Nothing is known of the larval habits. The adults have been collected beating dead limbs of several *Acacia* spp. and one or two *Prosopis* spp.

Comparisons. Of the immaculate species with pronotal midline groove, *P. turbida* is much smaller than any others. It is most similar to *P. dozieri* but that species is much more robust, has antennae serrate from antennomere 6 and lacks the confused looking elytral setae. In size and general shape it resembles *P. coursetiae* but that species has elytral maculae and more regular elytral setae.

Etymology. Named for the confused appearance of the setae.

### 32. *Paratyndaris* (s. str.) *albofasciata* Knull, 1937

(Figs. 19, 57)

*Paratyndaris albofasciata* Knull, 1937:253, Pl. 1, Fig. 1 (adult); Blackwelder, 1939:42; Barr, 1941:169; Van Dyke, 1945:109; Blackwelder & Blackwelder, 1948:20.

*Ancylotela albofasciata*: Barr, 1972:107 (in key).

*Tyndaris albofasciata*: Cobos, 1980:41.

Diagnosis. Slender, cylindrical; cupreo-black, elytra with red macula on lateral margin at basal third; surface obscured by dense recumbent scale-like setae; strongly serrate from antennomere 7; pronotum with broad median depression, surface coarsely densely punctate and coarsely asperate on either side of depression; elytra with lateral margins weakly dentate in apical half, with bilaminar preapical acute teeth, sutural ridge strongly divaricate apically; apex tooth-like; abdominal ventrite 2 in male with broad rounded brown lobe extending over 1/4 of ventrite 3; slightly smaller in female.

Type Specimens. Described from a series of specimens. The holotype female (FMNH) is labelled as follows: "Tucson, Ar. (p) VIII-12-36 (h)/J. N. Knull Collr. (p)/ (red) HOLOTYPE (p) *Paratyndaris albofasciata* Knull (h)/ J. N. Knull Collection (p)/ *Paratyndaris albofasciata* Knull det. J. Knull (p)".

Variation. Some are black without cupreous tint. Males vary from 4.5–5.6 mm long ( $\bar{x}$  = 4.9 mm,  $n$  = 25) and from 1.4–1.8 mm wide ( $\bar{x}$  = 1.6 mm,  $n$  = 25); females from 4.3–6.2 mm long ( $\bar{x}$  = 5.2 mm,  $n$  = 25) and 1.4–2.1 mm wide ( $\bar{x}$  = 1.7 mm,  $n$  = 25); 321 specimens were studied in total.

Distribution (Fig. 19). **UNITED STATES.** ARIZONA: Coconino Co. (FMNH); Maricopa Co., Phoenix, Wickenburg (CASC, OSUC, USNM); Pima Co., Tucson (type locality); Pinal Co., S. of Florence (CASC, EMEC); Santa Cruz Co., 24 km N. Nogales; Yuma Co. (previous 2, WFBM); CALIFORNIA: Imperial Co., S of Palo Verde (WFBM); Riverside Co., Blythe (FMNH); San Bernardino Co., Adelanto (Barr, 1941). **MEXICO.** BAJA CALIFORNIA SUR: Santa Rosalia (Van Dyke, 1945); SONORA: near Hermosillo, Santa Ana (DSVC).

**Biology.** The larval hosts are unknown. Adults have been collected on *Acacia constricta* Benth., *A. greggii* Gray (previous 2, WFBM), *Celtis* sp. (FSCA), *Cercidium floridum* Benth. (GCWC, RLWE), *C. microphyllum* (Torr.) Rose & Johnston (CDAC, TAMU), *Lysiloma candida* T. S. Brandeg., and *Olnya tesota* Gray (last 2, DSVC). Adults have been collected from May 23 to September 24.

**Comparisons.** In shape of pronotum and body in general, *P. albofasciata* resembles some in the subgenus *P. (Waltersia)*, subgen. nov.; however, as pointed out in the original description, the scale-like vestiture is unique in the genus.

**subgenus *Paratyndaris (Waltersia)* Nelson and Bellamy, subgen. nov.**  
(Figs. 3, 6, 10)

Type species: *Tyndaris barberi* Skinner, present designation.

Antennae serrate with sensory fossae from antennomere 7 or 8 (Fig. 10). Pronotum with broad shallow longitudinal discal depression or flattened, gibbose parts coarsely asperate; lateral carina obscure. Elytral apex toothed with preapical teeth (Fig. 3); surface with short inconspicuous setae with extensive pattern of yellow. Abdominal ventrite 5 triangular, terminates variably. Tarsomeres with pulvilli relatively narrow (Fig. 6).

**Etymology.** This feminine subgenus is named in honor of George C. Walters, Jr. who has been a friend and colleague for many years and remains a positive influence in advancing the study of Buprestidae.

**33. *Paratyndaris (Waltersia) barberi* (Skinner, 1903)**  
(Figs. 3, 6, 10, 24, 58)

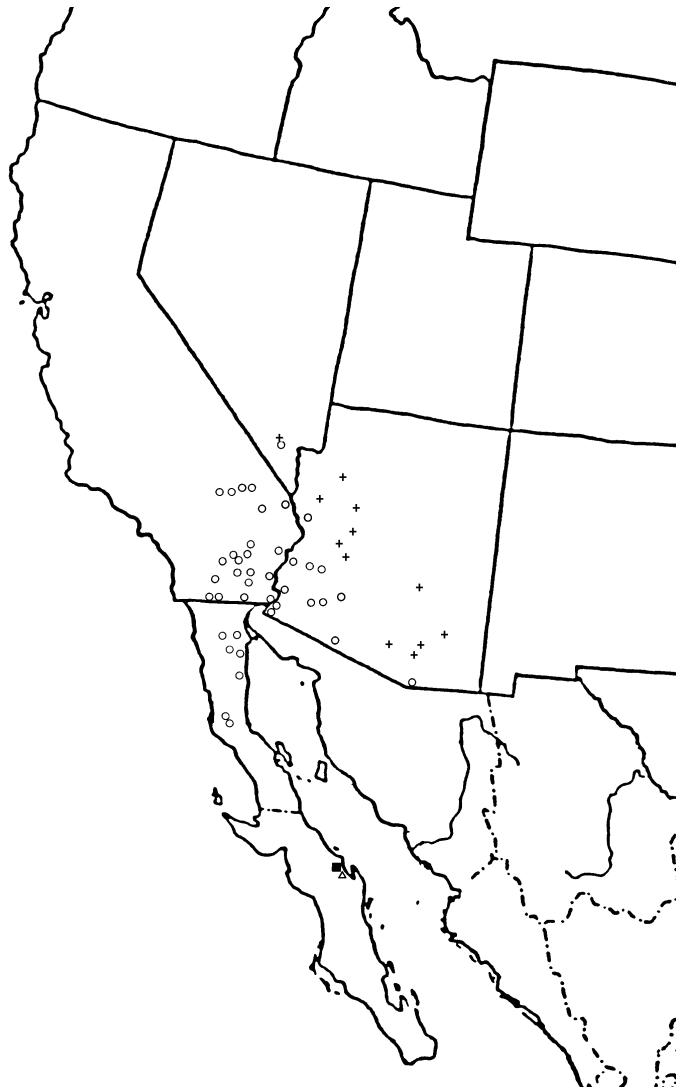
*Tyndaris barberi* Skinner, 1903:238, Pl. 10, Fig. 3; Kerremans, 1907:568; Leng, 1920:178; Cobos, 1980:41, Fig. 13; Walters & Bellamy, 1990:114; Akiyama & Ohmomo, 2000:Pl. 10, Fig. 106. *Paratyndaris barberi*: Fisher, 1919:92; Chamberlin, 1926:224; Obenberger, 1926:55; Knull, 1937:254; Blackwelder, 1939:42.

*Ancylotela barberi*: Barr, 1972:100, Fig. 1 (adult), 110 (in key).

**Diagnosis.** Moderately slender; black somewhat shiny with faint cupreous tint below, elytra with extensive irregular yellow maculations; head, pronotum and beneath clothed by recumbent white setae, elytra with sparse inconspicuous short setae; antennae serrate from antennomere 8 (Fig. 10); pronotum with broad longitudinal discal depression, gibbose parts coarsely muricate-asperate; lateral margins present but weak; elytra with weak sub-humeral lobe; lateral margins feebly dentate toward apex, with paired subapical acute teeth, apex tooth-like (Fig. 3); disk with stria punctures small, without rows of interstitial teeth; abdominal ventrite 2 in male with broadly rounded pale brown median lobe extend-



ing over 2/5 of ventrite 3, in female brownish lobe extends over 1/6 to 1/4 of ventrite 3; tarsomeres with pulvilli narrow on 1-4 (Fig. 6).



**FIGURE 24**, known geographic distribution of: *Paratyndaris* (*Waltersia*) *barberi* (Skinner) (+); *P. (W.) knulli* (Barr) (open circles - ○); *P. (W.) equihuai* Westcott (open triangles - △); *P. (W.) trilobata* Westcott (solid squares - ■).

Type Specimens. Described from three specimens. The lectotype female (ANSP) is labelled as follows: “Florence Ariz (p) VI-28-03 (h) C. R. Biederman (p)/ *T. barberi* Skinner Cotype (h)/ Collection of the Academy of Natural Sciences of Philadelphia (ANSP) (p)/ (red) TYPE (p) 8167 *Tyndaris barberi* Skin. (h)/ (red) LECTOTYPE *Tyndaris barberi* 2000 Skinner G. H. Nelson (p)”.

Variation. There is much variation in the amount and pattern of yellow maculations from predominantly black to predominantly yellow. Males vary from 4.5–6.0 mm long ( $\bar{x}$  = 5.1 mm, n = 25) and from 1.5–2.2 mm wide ( $\bar{x}$  = 1.8 mm, n = 25); females from 4.5–6.0 mm long ( $\bar{x}$  = 5.4 mm, n = 25) and 1.6–2.2 mm wide ( $\bar{x}$  = 1.8 mm, n = 25); 123 specimens were studied in total.

Distribution (Fig. 24). **UNITED STATES. ARIZONA:** Coconino Co., Oak Creek Cyn. (FMNH); Graham Co., Graham Mts (FSCA); Maricopa Co., Gila Mts. (Knull, 1937); 5 mi N Sunflower; Wickenburg; Mohave Co., Peach Springs; Pima Co., Tucson (last 4, Barr, 1972); Pinal Co., Florence (type locality); Yavapai Co., Congress Jct. (Barr, 1972); **CALIFORNIA:** Riverside Co., Joshua Tree Nat. Mon. (Walters & Bellamy, 1990).

Biology. The larval hosts are unknown. Adults have also been collected on *Acacia greggii* Gray (WFBM), *Mimosa biuncifera* Benth. (GHNC), *Prosopis glandulosa* Torr. (Knull, 1937), and *Quercus turbinella* Greene (GHNC). Adults have been collected from May 1 to August 27.

Comparisons. This species is most closely similar to *P. knulli*, but that species has pronotal lateral margins indistinct and usually has a small elevated smooth area anterior to hind angles of pronotum; *P. barberi* has thin but distinct pronotal lateral margin and lacks the smooth area of the pronotum. *P. barberi* is also similar to *P. equihuai* and is contrasted under that species.

### 34. *Paratyndaris (Waltersia) knulli* (Barr, 1972)

(Figs. 24, 59, 72)

*Ancylotela knulli* Barr, 1972:102, Fig. 2 (holotype).

*Paratyndaris barberi*: Barr, 1941:169; Nelson, 1962:58.

*Ancylotela barberi*: Nelson 1962:58.

*Tyndaris knulli*: Akiyama & Ohmomo, 2000; Plate 10, Fig. 107.

Diagnosis. Moderately slender; black, somewhat shiny with cupreous or purplish tints above and below, elytra with extensive irregular yellow maculations; head, pronotum and beneath clothed by recumbent white setae, elytra with sparse inconspicuous short setae; antennae serrate from antennomere 8; pronotum with broad longitudinal discal depression, gibbose parts coarsely muricate-asperate; lateral margins obscure; elytra with weak sub-humeral lobe; lateral margins weakly dentate apically with paired subapical acute teeth, apex tooth-like, disk with stria punctures small, without rows of interstitial teeth; abdominal ventrite 2 in male with broadly rounded pale brown median lobe extending over 1/3 of ventrite 3, in female smaller rounder lobe extending over 1/4 of ventrite 3; tarsomeres with pulvilli narrow on 1–4.

Type Specimens. Described from a long series of both sexes. The holotype female (CASC) is labelled as follows: “Jacumba Cal. VI-24-40 W.F. Barr (h)/ (red) HOLOTYPE *Ancylotela knulli* W.F. Barr (h)/ California Academy of Sciences Type No. (p) 11508 (h)”.

Variation. There is broad variation in the amount of yellow on the elytra from equal yellow and black to entirely yellow with black along suture and several speck-like spots along lateral margin. Males vary from 4.0–5.5 mm long ( $\bar{x}$  = 4.9 mm, n = 25) and from 1.4–1.9 mm wide ( $\bar{x}$  = 1.7 mm, n = 25); females from 4.0–5.6 mm long ( $\bar{x}$  = 4.9 mm, n = 25) and 1.4–2.0 mm wide ( $\bar{x}$  = 1.7 mm, n = 25); 594 specimens were studied in total.

Distribution (Fig. 24). **UNITED STATES.** ARIZONA: Maricopa Co., Cave Creek (GHNC); Mohave Co., 8 mi. E Topock; Pima Co., Organ Pipe Cactus Nat. Mon.; Yuma Co., Quartzsite, Yuma (last 3, Barr, 1972); CALIFORNIA: various sites in the following counties: Imperial; Riverside; San Bernardino; and San Diego (all, Barr, 1972). **MEXICO.** BAJA CALIFORNIA (norte), various sites (Barr, 1972); SONORA: 19 mi. S Hermosillo (Barr, 1972).

Biology. It has been reared from the dead branches of *Prosopis glandulosa* var. *torreyana* (L.Benson) M.C. Jtn. [= *P. juliflora* (Swartz) D. C.] (GHNC). Adults have also been taken on *Acacia greggii* Gray, *Cercidium floridum* Benth., *Gutierrezia* sp. (all, Barr, 1972), *Olneya tesota* Gray (Nelson, 1962 as *barberi*) and *Prosopis pubescens* Benth. (Barr, 1972). Adults have been collected from May 13 to an unspecified date in October.

Comparisons. *Paratyndaris knulli* is closely similar to *P. barberi* and is compared under the species. It is also contrasted under *P. equihuai* below.

### 35. *Paratyndaris* (*Waltersia*) *equihuai* Westcott, 2000 (Figs. 24, 60)

*Paratyndaris equihuai* Westcott, 2000:141.

Diagnosis. Slender; black with distinct purplish-coppery hue, elytra ivory except for narrow sutural stripe, a narrow dark lateral margin and few variable small dark maculae, some as partial vittae; head, pronotum and beneath clothed by recumbent white setae, elytra with sparse short setae; antennae serrate from antennomere 7; pronotum with broad shallow median depression from basal 1/3 to near apex finely punctate, gibbose areas strongly muricate and laterally finely punctate, lateral margins obscure; elytra with strong round lobe; lateral margins finely dentate in apical 1/2, with paired subapical acute teeth, apex tooth-like, disk with striae punctures large, intervals somewhat flattened without rows of teeth; abdominal ventrite 2 in male with broad pale median lobe extending over 2/5 of ventrite 3, which also has smaller lobe extending over slightly less than 1/5 of ventrite 4, in female abdominal ventrite 2 with smaller lobe extending over less than 1/5 of ventrite 3; third ventrite with or without indication of lobe.

Type Specimens. Described from two males and three females. The holotype male (UNAM) is labelled as follows: “MEX, Baja Calif. Bahía Concepción Playa Santispac 19-VI-1993 Westcott & Equihua (p)/ (red) HOLOTYPE *Paratyndaris equihuai* R. L. Westcott (h)”.

Variation. There is some variation in the pattern of dark elytral maculae, and in the distinctness of antennomere 7 beginning the serration. The type series varies from 4.4–5.0 mm long.

Distribution (Fig. 24). Known only from the Mexican state of Baja California Sur.

Biology. Nothing is known of the hosts of this species other than the suggestion that some specimens were beaten from mesquite (Westcott, 2000).

Comparisons. *Paratyndaris equihuai* is similar to *P. barberi* and *P. knulli* but differs from both in the following: 1) antennae serrate from 7 instead of 8; 2) elytral lobe strong rounded, disk with strial punctures much larger and intervals flatter; 3) abdominal ventrite 3 with well-developed lobe; and 4) body more parallel-sided. It is also similar to *P. trilobata* Westcott under which it is compared below.

### 36. *Paratyndaris (Waltersia) trilobata* Westcott, 2000

(Figs. 24, 61)

*Paratyndaris trilobata* Westcott, 2000:141, Fig. 7.

Diagnosis. Small, slender; black with coppery reflection above, more purplish-coppery below, elytra straw-yellow except for suture, umbones, lateral margins and varied submarginal vitta; head, pronotum and beneath clothed by coarse recumbent white setae, elytra with sparse semirecumbent hair-like setae; antennae serrate from antennomere 7; pronotum with middle vaguely flattened, surface of disk microreticulate, finely, evenly, densely asperous, coarsely reticulate-punctate on sides, lateral margins obscure; elytra with strong round subhumeral lobe; lateral margins finely serrate in apical 1/3, with paired subapical acute teeth, apex tooth-like, disk with strial punctures large, intervals flattened without dentations; abdominal ventrite 2 in male with broad rounded pale median lobe extending over 2/5 of ventrite 3, that of ventrite 3 protruding over 1/4 of ventrite 4 which bears a tiny lobe, in female ventrite 2 has lobe extending over 1/5 of ventrite 3 that bears a feeble lobe; tarsomeres with pulvilli moderately narrow on 1-4.

Type Specimens. Described from two males and one female. The holotype female (UNAM) is labelled as follows: "MEX, Baja Calif. Sur 15 mi. SSE Mulege 25-VII-1977 Dozier & Westcott (p)/ Beating mesquite, PROSOPIS GLANDULOSA var. TORREYANA (p)/ (red) HOLOTYPE *Paratyndaris trilobata* R. L. Westcott (h)".

Variation. The type series shows minor variation in color, one specimen with less distinctly serrate antennomere 7, one lacks metallic reflections ventrally, one with the pronotum having slight, short elongate depression at middle and surface lacks distinct microreticulation; these vary from 3.9–4.7 mm in length.

Distribution (Fig. 24). Known only from the Mexican state of Baja California Sur.

Biology. The larval habits are unknown. Adults have been taken on dead branches of *Prosopis glandulosa* var. *torreyana* (L. Benson) M. C. Jtn.

Comparisons. In general appearance and size, *P. trilobata* is most similar to *P. equihuai* and differs from it by 1) pronotum lacking the broad depression at middle, 2) being finely evenly asperate on either side rather than distinctly muricate, and 3) abdominal ventrites in male 2, 3 and 4 lobed. These same characteristics distinguish *P. trilobata* from *P. barberi* and *P. knulli*.

### Phylogeny of *Paratyndaris*

As in our earlier joint efforts (Nelson & Bellamy, 1991, 1996), a cladistic analysis was undertaken. We used the compact computer program *Hennig86* (Farris, 1988; Fitzhugh, 1989). The list of examined taxa (Table 1) was compared against the list of coded character states (Table 2) and yielded the character state matrix (Table 3); the multistate character were coded as ordered. The polarity of the various character states comes from that presented in recent phylogenetic analyses (e.g. Bellamy & Bílý, 1997, Bellamy & Westcott, 1996), the classifications presented by Hołyński (1993) and Bellamy (2003) and the recent discussion about antennal morphology and higher classification (Volkovitsh, 2001).

**TABLE 1.** Taxa examined to construct the character state matrix (Table 3).

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<i>Acmaeodera mimicata</i> Knull, 1938
<i>Ancylotela oculata</i> Waterhouse, 1882 (Fig. 66)
<i>Bordonia descarpentriesi</i> Cobos, 1980
<i>Bordonia venezolana</i> Cobos, 1980 (Fig. 62)
<i>Bulis bivittata</i> (Fabricius, 1801)
<i>Chrysophana conicola</i> Van Dyke, 1937
<i>Chrysophana placida</i> (LeConte, 1854)
<i>Hayekina dispar</i> (Kerremans, 1899) (Fig. 63)
<i>Mastogenius robustus</i> Schaeffer, 1905
<i>Mimicoclytrina saundersii</i> (Waterhouse, 1904) (Fig. 64)
<i>Neocypetes guttulata</i> (Fairmaire & Germain, 1858) (Fig. 68)
<i>Neocypetes lethierryi</i> (Théry) 1896)
<i>Ocypetes crassicollis</i> (Laporte & Gory, 1837) (Fig. 67)
<i>Ocypetes irrorata</i> (Gory, 1840)
<i>Paraancylotela amplidorsa</i> (Kerremans, 1914) (Fig. 65)
<i>Paratyndaris</i> (s. str.) <i>olneyae</i> (Skinner, 1903)
<i>Paratyndaris</i> ( <i>Knulliella</i> ) <i>suturalis</i> Fall, 1934
<i>Paratyndaris</i> ( <i>Waltersia</i> ) <i>barberi</i> (Skinner, 1903)
<i>Pelycothorax tylauchenoides</i> Bellamy & Westcott, 1996 (Fig. 70)
<i>Polycesta californica</i> LeConte, 1857
<i>Polycetes rhois</i> Marseul, 1865
<i>Thrinopyge alacris</i> LeConte, 1858
<i>Tyndaris patagiata</i> (Berg, 1885)
<i>Tyndaris planata</i> (Laporte & Gory, 1835) (Fig. 69)
<i>Xyrosceles crocata</i> (Gory & Laporte, 1839)

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**TABLE 2.** Characters, character states examined and character state coding: 0 = plesiomorphic; 1, 2, 3, 4 = apomorphic.

- 
0. Body: flattened above & below (0); subcylindrical (1).
  1. Frontoververtex: evenly convex or slightly depressed (0); swollen between eyes, projecting anteriorly (1).
  2. Eyes: small, posterior margin not reaching anterior pronotal margin (0); large, reaching pronotal margin (1).
  3. Eye, inner margins: converging dorsally or subparallel (0); diverging dorsally (1).
  4. Anteclypeus: visible (0); hidden beneath clypeus (1).
  5. Mandibles: robust, coarsely punctate laterally (0); slender, sparsely punctate or impunctate laterally (1).
  6. Antenna: serrate from antennomere 3 or 4 (0); serrate from 5 (1); serrate from 6 (2); serrate from 7 (3); serrate from 8 (4).
  8. Antenna: with sensory pores either generally distributed over both internal and external surfaces (0); with two or more foveae of sensory pores on each antennomere (1); with one small fovea on apicolateral portion of each serrate antennomere (2).
  9. Pronotum: irregular, with several large depressions (0); disk entire, flat to convex (1); with single median depression (2); with large circular depression (3).
  10. Pronotum, greatest width: median (0); at or just beyond posterior margin (1).
  11. Pronotum, basal foveae: present, deep (0); present, shallow or feebly indicated (1); absent (2).
  12. Pronotum, basal foveae: one medial, two lateral (0); only two lateral (1).
  13. Pronotum, posterior margin: more or less entire, transverse (0); strongly biarcuate on either side of median posteriorly produced lobe (1).
  14. Pronotum, posterior margin: no marginal carinae, only apical teeth (0); longitudinal carinae, apical teeth (1), entire (2).
  15. Pronotum, lateral carina: partial, not reaching anterior margin (0); entire (1).
  16. Pronotum: with single lateral carina (0); with paired lateral carinae (1).
  17. Scutellum: absent, not visible (0); visible (1).
  18. Scutellum: touching pronotum (0); slightly beyond pronotal posterior margin (1); hidden under fused elytra (2).
  19. Elytra: not fused (0); fused (1).
  20. Elytra, surface: punctate (0); costate with intersitital punctures (1); carinate (2).
  21. Elytra, surface: more or less even (0); with pronounced sinuous carinae (1).
  22. Elytra, punctures: without setae (0); with single projecting seta (1).
  23. Elytral setae: absent (0); short (1); elongate (2).
  24. Elytra, sutural margin, at least apically: entire (0); subserrate or serrate (1).
  25. Elytra, lateral margin, at least apically: entire (0); subserrate or serrate (1).
  26. Elytra, apices: simple, truncate, or with one or two spines (0); complex, with various teeth on two dorsoventral planes (1).
  27. Epipleural lobe: absent (0); present (1); secondarily lost with suite of elytral adaptations (2).
  28. Epipleural lobe: separated from elytral disc by carina (0); entire (1); absent (2).
  29. Epipleural lobe covering metepisternum: completely (0); partially (1); absent (2).
  30. Epipleural lobe: rounded (0); with sharp angulate posterior margin (1); absent (2).
  31. Epipleural lobe: feebly projecting (0); strongly projecting (1); absent (2).
  32. Pygidium: apex hidden beneath elytral apex (0); visible, but not projecting (1); projecting well beyond elytral apex (2).
  33. Prosternum, anterior margin: more or less entire, not projecting forward (0); strongly projecting medioanteriorly to partially hide mouthparts (1).
  34. Prosternal disc: medially gibbose (0); entire, even (1).
  35. Sternal cavity: with mesosternal margins (0); projecting into base of metasternum (1).
  36. Hypomera: entire (0); with scrobes to receive fore- and mid-legs (1).
  37. Abdomen, suture between ventrites 2 and 3: evenly transverse, entire (0); with posteriorly convex median lobe (1).
  38. Last visible ventrite: apex truncate or broadly rounded (0); strongly attenuate apically (1); with apical spine or peg (2).
  39. Femora: fusiform (0); sides more or less subparallel (1).
-

40. Tibiae: round in cross-section (0); flattened, explanate (1).  
 41. Metacoxa, apicolateral margin: evenly rounded (0); emarginate (1); with acute tooth (2).  
 42. Tarsal pulvilli: on four basal tarsomeres (0); only on tarsomeres 3 and 4 (1); only on 4 (2).  
 43. Tarsal claws: simple, base slender (0); simple, base swollen (1); appendiculate (2).

**TABLE 3.** Character state matrix for *Paratyndaris* and outgroups (Table 1).

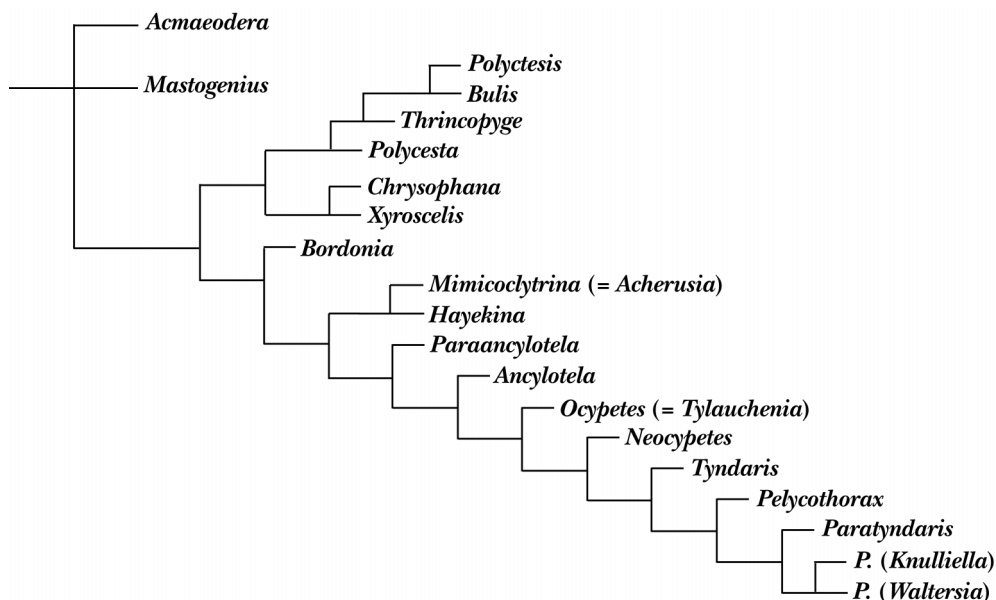
	1										2										3										4															
Character	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3		
<i>Acmaeodera</i>	0	0	1	1	1	1	1	0	0	1	0	2	0	0	1	1	0	0	2	1	1	0	1	1	2	1	0	2	2	2	3	2	0	0	1	1	0	0	0	1	0	0	0	2		
<i>Ancylotela</i>	1	0	0	0	0	3	2	0	1	0	0	1	2	1	0	1	0	0	1	0	0	0	0	0	0	1	1	1	1	0	0	0	0	1	0	0	1	0	0	0	0	0	1	1		
<i>Bordonia</i>	1	0	1	0	1	1	4	2	0	1	0	2	0	0	2	1	0	1	0	0	1	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Bulis</i>	0	0	0	0	0	0	0	2	0	1	1	2	0	1	2	0	0	1	1	0	1	0	1	1	0	0	0	1	1	1	2	0	1	0	1	0	0	0	0	0	0	0	0	0	1	
<i>Chrysophana</i>	0	0	0	0	0	0	0	2	0	1	1	1	1	0	2	0	0	1	0	0	0	0	0	0	0	1	0	1	0	1	1	0	0	0	1	0	0	0	0	0	0	1	0	0	1	
<i>Hayekina</i>	1	0	1	0	1	0	2	2	0	1	1	2	0	1	2	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2	0	1	0	0	1	2	0	0	0	0	0	1	2		
<i>Mastogenius</i>	0	0	1	0	1	1	0	0	0	1	0	2	0	0	2	1	1	1	0	0	0	0	1	1	0	0	0	1	1	0	0	1	0	0	1	1	0	0	0	1	0	0	1	0	1	
<i>Mimicoclytrina</i>	1	0	1	0	1	0	2	2	0	1	1	2	0	1	2	1	0	1	0	0	1	0	0	0	0	1	0	1	0	0	0	2	0	1	0	0	1	2	0	0	0	0	1	2		
<i>Neocypetes</i>	1	0	0	0	0	0	2	2	0	2	0	2	0	1	2	1	0	1	0	0	2	0	1	1	0	2	1	1	1	1	0	0	0	0	1	0	0	1	1	0	0	0	1	1		
<i>Ocypetes</i>	1	0	0	0	0	2	2	0	2	0	2	0	1	2	1	0	1	0	0	1	0	0	0	0	1	1	1	1	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	
<i>Paraancylotela</i>	1	0	0	0	1	1	3	2	0	1	0	2	0	1	2	1	0	1	0	0	1	0	1	1	0	1	1	1	1	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	1	
<i>Paratyndaris</i>	1	0	1	0	0	0	2	2	0	2	0	2	0	0	2	1	0	1	0	0	1	0	1	2	0	1	1	1	0	0	1	2	0	1	0	0	1	2	1	0	0	0	1	2		
<i>P. (Knulliella)</i>	1	0	1	0	0	0	1	2	0	1	0	2	0	0	2	1	0	1	0	0	1	0	1	2	0	1	1	1	1	0	0	0	2	0	1	0	0	0	2	1	0	0	0	1	2	
<i>P. (Waltersia)</i>	1	0	1	0	0	0	4	2	0	1	0	2	0	0	2	1	0	1	0	0	1	0	1	1	0	1	1	1	0	0	0	0	1	0	1	0	0	1	2	1	0	0	0	0	0	
<i>Pelycothorax</i>	1	0	1	0	0	0	2	2	0	3	0	2	0	0	2	1	0	1	0	0	1	0	1	2	0	1	1	1	1	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0	0	
<i>Polycesta</i>	0	0	0	0	0	0	0	1	0	1	0	1	1	0	2	0	0	1	0	0	2	0	0	0	0	0	1	0	1	0	1	0	0	0	0	1	0	0	0	0	1	0	0	2	0	
<i>Polyctesis</i>	1	0	1	0	0	0	0	2	0	1	1	0	1	0	2	0	0	1	0	0	1	0	1	1	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
<i>Thrinopyge</i>	0	0	0	0	0	0	1	0	0	1	0	0	1	1	2	0	0	1	0	0	1	0	1	1	0	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
<i>Tyndaris</i>	1	0	0	0	0	0	1	2	0	2	0	2	0	0	2	1	0	1	0	0	1	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Xyrosceles</i>	1	1	0	0	0	1	0	2	1	0	1	0	1	0	1	0	0	1	0	0	2	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Within *Hennig86*, the character state matrix (Table 3) data were analyzed using the *mhennig* option which initially yielded two trees (length = 152, CI = 44, RI = 57) and two subsequent runs through the successive weighting option (*xsteps*) yielded two more refined trees (length = 343, CI = 69, RI = 75), one of which is shown in Fig. 77. Our purpose is only to demonstrate the results of an empirical analysis, not to prove that either of us is keeping abreast of the many fits and starts of modern phylogenetic methodology, software and algorithms. Since this analysis demonstrates clearly the branching that supports our hypotheses about the relationships of the taxa *Paratyndaris*, *Pelycothorax* and *Tyndaris*, the proposal to recognize three subgenera within *Paratyndaris* and to distinguish the 36 species discussed in this revision from both *Pelycothorax* and *Tyndaris*, is confirmed.

From the evolution of the classification of this portion of the subfamily Polycestinae, the results presented in the cladogram (Fig. 77) show that current placements may need to be re-evaluated. Most of the pertinent history is detailed above in the Introduction and Taxonomic History discussion. Several additional publications should be mentioned: Cobos (1959) featured a discussion of *Tyndaris patagica* Berg, 1885 and the description and placement of a new genus and species *Paraancylotela nobilissima* Cobos, 1959 (this species was subsequently synonymized under *Tyndaris amplidorsa* Kerremans, 1914). A brief discussion about the tribe Tyndarini Cobos, 1955 was given with two subtribes Tyndarae (sic!) (including *Tyndaris* and *Ancylotela*) and Tylacheniae (sic!) (including *Tylauchenia* and *Paraancylotela*) were described in a short key. Thereafter a discussion of

*Tylauchenia* Burmeister, 1872, with a key to species, was given. Later, Cobos (1973) elevated Tylauchenini to tribal rank and revised *Tylauchenia*. Contrary to his placement earlier (Cobos, 1959), he placed *Tylauchenia*, *Ancylotela* and a new genus, *Neocypetes* (type species: *Tylauchenia guttulata* Fairmaire & Germain, 1858), in this revised definition of Tylauchenini. Cobos (1980) maintained the same genera in Tylauchenini, but added the genus *Bordonia* Cobos, 1980 (type species: *Bordonia venezolana* Cobos, 1980) to the Tyndarini (with *Tyndaris* and *Paraancylotela*). This system was followed by Bellamy (1985).

Hołyński (1993) included five subtribes under Tyndarini: Tyndarina, Acherusiina Cobos, 1955, Tylaucheniina, Prospherina Cobos, 1980 and *Astraeusina* (sic!) Cobos, 1980, for *Astraeus* and *Bulis*, both Laporte & Gory, 1837. Bellamy (1995) separated *Bulis* into a new monotypic subtribe, *Bulisina* (sic!) and emended that to *Buliina* (Bellamy, 1996). Volkovitsh (2001) reorganized the sequence of tribes and subtribes of Polycestinae, which was followed in the recent summary of buprestid higher classification (Bellamy, 2003). Changes that occurred in that work in the context of this present study include: *Ocypetes* Saunders, 1871 (= *Tylauchenia*) was recognized as having priority; the preoccupation of *Acherusia* Laporte & Gory, 1837 by the crustacean *Acherusia* Costa, 1834 resulted in a new name for this genus and the subtribe (as required for family-group names (ICZN, 1999, Article 39) respectively as *Mimicoclytrina* Bellamy, 2003 (replacement name for *Acherusia* Laporte & Gory, 1837) and *Mimicoclytrinina* Bellamy, 2003 (replacement name for Acherusiina Cobos, 1955).



**FIGURE 77**, hypothetical phylogenetic relationships of *Paratyndaris* plus outgroups (length = 343, CI = 69, RI = 75).



Figure 77 shows that *Bordonia* branches outside of the clade which contains the remaining genera of the subtribes Mimoclytrinina, Tylauchenina and Tyndarina. The two genera placed in Mimoclytrinina form a monophyletic group. *Paraancylotela* diverges basally from the three genera placed in Tylauchenina, rather than from the genera of Tyndarina where it is now placed. *Tyndaris*, *Pelycothorax* and *Paratyndaris* form a monophyletic group. The three subgenera of *Paratyndaris* form a monophyletic group.

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## Literature Cited

- Akiyama, K., & Ohmomo, S. (2000) *The Buprestid beetles of the world*. In: H. Fujita (Ed.). *Mushi-Shas Iconographic Series of Insects 4*. Mushi-Sha, Tokyo, Japan, 341 pp., 120 plates.
- Arnett, R.H. (1962) *The beetles of the United States* (a manual for identification), pt. III. The Catholic University Press, Washington, D.C., pp. 369–526.
- Barr, W. F. (1941) New distributional records of *Paratyndaris* (Coleoptera, Buprestidae). *Bulletin of the Brooklyn Entomological Society*, 36(4), 168–169.
- Barr, W.F. (1972) New species of *Ancylotela* from Mexico and the United States with a key to the known species. *Journal of the Kansas Entomological Society*, 45(1), 92–110.
- Bellamy, C.L. (1985) A catalogue of the higher taxa of the family Buprestidae (Coleoptera). *Navorsinge van die Nasionale Museum Bloemfontein*, 4(15), 405–472.
- Bellamy, C.L. (1995) A new subtribe for the monotypic Southern African genus *Bulis* Laporte and Gory (Coleoptera: Buprestidae). *Annals of the Transvaal Museum*, 36(11), 171–175.
- Bellamy, C.L. (1996) Further consideration of the subtribe Thomassetiina Bellamy: a new species, new records and placement in the contemporary classification (Coleoptera: Buprestidae). *Annals of the Transvaal Museum*, 36, 215–222.
- Bellamy, C.L. (2003) An illustrated summary of the higher classification of the superfamily Buprestoidea. *Folia Heyrovskyana, Supplementum* 10, 198 pp., 44 color plates, 453 figs.
- Bellamy, C.L. & Bílý, S. (1997) Phylogenetic relationships and tribal placement of *Odettea* Baudon (Coleoptera: Buprestidae). *Oriental Insects*, 31, 409–418.
- Bellamy, C.L. & Nelson, G.H. (1990) Lectotype designations in the Buprestidae collections of the National Museum of Natural History (Coleoptera). *Insecta Mundi*, 3(4)(1989), 289–297.
- Bellamy, C.L. & Nelson, G.H. (2002) Chapter 41. Buprestidae Leach 1815. In: Arnett, R. H., Thomas, M.C., Skelley, P.E. & Frank, J.H. (Eds.), *American Beetles*, Volume 2, CRC Press, pp. 98–112.
- Bellamy, C.L. & Westcott, R.L. (1996) The phylogenetic placement of two new genera and species of Buprestidae (Coleoptera) from Mexico. *Journal of Natural History*, 30, 229–245.
- Bílý, S. (1987) *Tyndaris* (*Knulliella*) *mojito* sp.n. from Cuba (Coleoptera, Buprestidae). *Acta Entomologica Bohemoslovaca*, 34, 45–47.
- Blackwelder, R.E. (1939) *Fourth Supplement 1933 to 1938 (inclusive) to the Leng Catalogue of Coleoptera of America, north of Mexico*. Mount Vernon, N.Y., 146 pp.
- Blackwelder, R.E. (1944) Checklist of the coleopterous insects of Mexico, Central America, the West Indies and South America. *United States National Museum, Bulletin* 185, part 2, iii + pp. 189–341.
- Blackwelder, R.E. & Blackwelder, R.M. (1948) *Fifth Supplement 1939 to 1947 (inclusive) to the Leng Catalogue of Coleoptera of America, north of Mexico*. Mount Vernon, N.Y., 87 pp.
- Burke, H.E. (1917) Flat-headed borers affecting forest trees in the United States. *United States Department of Agriculture, Bulletin*, 437, 1–8.
- Burke, H.E. (1918) Notes on some southwestern Buprestidae. *Journal of Economic Entomology*, 11(2), 209–211.
- Cazier, M.A. (1951a) The Buprestidae of the Bahamas Islands, British West Indies (Coleoptera, Buprestidae). *American Museum Novitates*, 1517, 1–9.
- Cazier, M.A. (1951b) The Buprestidae of north central Mexico (Coleoptera). *American Museum Novitates* 1526, 1–56.
- Chamberlin, W.J. (1926) *Catalogue of the Buprestidae of North America north of Mexico*. Corvallis, Oregon, 289 pp. + 1 p. index.
- Cobos, A. (1955) Estudio sobre los Ptosimites de Ch. Kerremans (Coleoptera, Buprestidae). *Bulletin Institute Royal des Sciences Naturelles de Belgique*, 32(13), 1–24.
- Cobos, A. (1959) Octava nota sobre Buprestidos neotropicales. Rectificaciones y descripciones diversas (Coleoptera, Buprestidae). *Bulletin de l'Institut Royal Sciences Naturelles Belgique*, 35(2), 1–47.
- Cobos, A. (1973) Revisión del género *Tylauchenia* Burm., y afines (Coleoptera, Buprestidae). *Archivos de Instituto de Aclimatación*, 18, 147–173.
- Cobos, A. (1980) Ensayo sobre los géneros de la subfamilia Polycestinae (Coleoptera, Buprestidae) pt. 1. *EOS, Revista Española de Entomología*, 54, 15–94.
- Dozier, B.K. (1988) A new species of *Tyndaris* from southwestern Mexico (Coleoptera: Buprestidae: Polycestinae). *The Coleopterists Bulletin*, 42(4), 334–336.

- Fall, H. C. (1934) A new buprestid beetle from the Florida Keys (Coleoptera). *Entomological News*, 45, 193–195.
- Farris, J. S. (1988) Hennig86 reference. Documentation for version 1.5.
- Fisher, W.S. (1919) Descriptions of a new genus and species of Buprestidae from Arizona (Col.). *Proceedings of the Entomological Society of Washington*, 21(4), 91–93.
- Fisher, W.S. (1933) New species of buprestid beetles from Mexico and Central America. *Proceedings of the United States National Museum*, 82(27), 1–47.
- Fisher, W.S. (1940) New West Indian buprestid beetles. *Psyche*, 46(4)(1939), 156–166.
- Fisher, W.S. (1949) New buprestid beetles from Mexico, Central and South America, and the West Indies. *Proceedings of the United States National Museum*, 99, 327–351.
- Fitzhugh, K. (1989) Cladistics in the fast lane. *Journal of the New York Entomological Society*, 97, 234–241.
- Good, H. G. (1925) Wing venation of the Buprestidae. *Annals of the Entomological Society of America*, 18, 251–276.
- Helfer, J.R. (1970) *The Natural History of Mendocino*. Jacques R. Helfer, Mendocino, California, 159 pp.
- Hespenheide, H. A. (1996) Chrysomelidae of the subfamily Clytrinae as models for mimicry complexes. In: Jolivet, P.H.A. & Cox, M.L. (Eds.), *Chrysomelidae Biology*, Volume 2: Ecological Studies, pp. 227–239, SPB Academic Publishing, Amsterdam, The Netherlands.
- Hołyński, R. (1993) A reassessment of the internal classification of the Buprestidae Leach (Coleoptera). *Crystal (Zoologica)*, 1, 1–42.
- Horn, G.H. (1885) Contributions to the coleopterology of the United States, (no. 4). *Transactions of the American Entomological Society*, 12, 128–162.
- ICZN. (1999) *International Code of Zoological Nomenclature*. Fourth Edition. International Trust for Zoological Nomenclature, 306 pp.
- Kerremans, C. (1892) Catalogue synonymique des Buprestides decrits de 1758–1890. *Mémoires de la Société Entomologique de Belgique*, 1, 1–304.
- Kerremans, C. (1893) Essai de groupement des Buprestides. *Annales de la Société Entomologique de Belgique*, 37, 94–122.
- Kerremans, C. (1902) Coleoptera Serricornia, Fam. Buprestidae. In: P. Wytsman (ed.). *Genera Insectorum*, Fascicle 12a. Verteneuil & Desmet, Bruxelles, pp. 1–48.
- Kerremans, C. (1907) *Monographie des buprestides*, Volume 2, livrason 18, pp. 545–576. J. Janssens, Bruxelles.
- Knull, J.N. (1937) New species of *Paratyndaris* with notes on described forms (Coleoptera:Buprestidae). *Annals of the Entomological Society of America* 30, 252–256.
- Knull, J.N. (1938) Four new Coleoptera (Elateridae and Buprestidae). *Entomological News*, 49, 19–22.
- Knull, J.N. (1941) New Coleoptera (Buprestidae and Cerambycidae). *Annals of the Entomological Society of America*, 34(4), 691–695.
- Knull, J.N. (1950) New Coleoptera with notes II (Buprestidae and Cerambycidae). *Entomological News*, 61(4), 691–695.
- Kukalová-Peck, J. & Lawrence, J. F. (1993) Evolution of the hind wing in Coleoptera. *The Canadian Entomologist*, 125, 181–258.
- Lawrence, J.F., Hastings, A.M., Dallwitz, M.J., Paine, T.A. & Zucher, E.J. (1999) *Beetles of the World: A Key and Information System for Families and Subfamilies and Beetle Larvae of the World*. CSIRO Publishing, CD-Rom & manual.
- Leng, C.W. (1920) *Catalogue of the Coleoptera of America, north of Mexico*. Mount Vernon, N.Y. , x + 470 pp.
- Leng, C.W. & Mutchler, A.J. (1927) *Supplement 1919 to 1924 (inclusive) to Catalogue of the Coleoptera of America, north of Mexico*. Mount Vernon, N.Y. , 78 pp.
- Lesne, M.P. (1937) Les Coléoptères Buprestides du genre *Sponsor*. Étude Systématique. *Annales des Sciences Naturelles Zoologie*, Series 10, 111–168.
- Nelson, G.H. (1962) Notes on the Buprestidae: Part III. *Bulletin of the Brooklyn Entomological Society*, 57(2), 56–60.
- Nelson, G.H. (1965) Notes on the Buprestidae: Part IV with a new synonym in *Chrysobothris*. *Bulletin of the Brooklyn Entomological Society*, 59–60, 37–41.
- Nelson, G.H. (1982) A new tribe, genus, and species of North American Buprestidae with consideration of subfamilial and tribal categories. *The Coleopterists Bulletin*, 35(4)(1981), 431–450.

- Nelson, G.H. (1987) Additional notes on the biology and distribution of Buprestidae (Coleoptera) in North America, II. *The Coleopterists Bulletin*, 41(1), 57–65.
- Nelson, G.H. & Bellamy, C.L. (1991) A revision and phylogenetic re-evaluation of the family Schizopodidae (Coleoptera, Buprestidae). *Journal of Natural History*, 25, 985–1026.
- Nelson, G.H. & Bellamy, C.L. (1996) A revision of the subtribe Hippomelanina: *Hippomelas* Laporte and Gory, *Prasinalia* Casey, *Gyascutus* (Stictocera) Casey, and *Barrellus*, gen. nov. (Coleoptera: Buprestidae). *Journal of Natural History*, 30, 861–911.
- Nelson, G.H., Verity, D.S. & Westcott, R.L. (1981) Additional notes on the biology and distribution of Buprestidae (Coleoptera) of North America. *The Coleopterists Bulletin*, 35(2), 129–151.
- Nelson, G.H. & Westcott, R.L. (1976) Notes on the distribution, synonymy, and biology of Buprestidae (Coleoptera) of North America. *The Coleopterists Bulletin*, 30(3), 273–284.
- Obenberger, J. (1926) Buprestidae 1. In: W. Junk, S. Schlenkling (Eds.). *Coleopterorum Catalogus*, Pars 84. W. Junk, Berlin, pp. 1–212.
- Parker, F.H. (1947) A new *Paratyndaris* from Arizona (Coleoptera, Buprestidae). *Bulletin of the Brooklyn Entomological Society*, 42, 31–33.
- Skinner, H. (1903) Notes on Buprestidae (Coleoptera) with descriptions of new species. *Entomological News*, 14, 236–239.
- Thomson, J. (1857) Description dun genre nouveau de la famille des Buprestides. *Archives Entomologiques*, 1, 168.
- Van Dyke, E.C. (1945) New species of North American Coleoptera. *The Pan-Pacific Entomologist*, 21(3), 101–109.
- Vogt, G.B. (1949) A biologically annotated list of the Buprestidae of the lower Rio Grande Valley, Texas. *Annals of the Entomological Society of America*, 42(2), 191–202.
- Volkovitsh, M.G. (2001) The comparative morphology of antennal structures in Buprestidae (Coleoptera): evolutionary trends, taxonomic and phylogenetic implications. Part 1. *Acta Musei Moraviae, Scientiae biologiae* (Brno), 86, 43–169.
- Volkovitsh, M.G. & Hawkeswood, T. J. (1999) The larva of *Prospheres aurantiopicta* (Laporte & Gory) with comments on the larval characteristics of Polycestoid taxa (Insecta, Coleoptera, Buprestidae). *Mauritiana* (Altenburg), 17(2), 295–314.
- Walters, G.C., Jr. & Bellamy, C.L. (1982) Notes on the distribution and biology of certain Buprestidae (Coleoptera): part III. *The Coleopterists Bulletin*, 36(2), 218–220.
- Walters, G.C., Jr. & Bellamy, C.L. (1990) Notes on the distribution and biology of certain Buprestidae (Coleoptera): part IV. *The Coleopterists Bulletin*, 44(1), 113–115.
- Waterhouse, C.O. (1882) New genera and species of Buprestidae and Heteromera. *The Annals and Magazine of Natural History*, (5) 9, 172–175.
- Westcott, R.L. (2000) Four new species of *Paratyndaris* Fisher from Baja California Sur, Mexico (Coleoptera:Buprestidae). *Giornale Italiano di Entomologia*, 9(1998), 137–142.
- Westcott, R.L., Atkinson, T.H., Hespenheide, H.A. & Nelson, G. H. (1990) New country and state records, and other notes for Mexican Buprestidae (Coleoptera). *Insecta Mundi*, 3(1989)(3), 217–232.
- Zoological Record for 1980. Insecta, Part B, Coleoptera, Section 13B: Buprestidae, Volume 117, 287–293 (December 1983).